

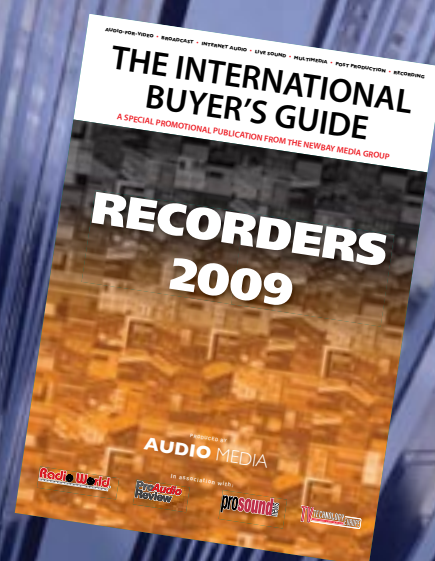
# AUDIO MEDIA

THE WORLD'S LEADING PROFESSIONAL AUDIO TECHNOLOGY MAGAZINE

## Mirror's Edge *Cityscape Game Sound*

Reality Bites  
*A TV Trio*

SADiE LRX2  
*Location Recorder*



## Special Supplement

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Also: AKG C214 • Sony Acid Pro 7 • Source Elements Source-Connect • Small DAW Controller Round-Up • SADiE LRX2 • AMSR: DiGiCo SD8 • Reality Bites: X-Factor, She's Got The Look, The Coach... • Recorders: Product And Purpose • Pimp My Ride, Starring AKA • AMSR: The Edinburgh Picture House • What's Up UK: The Future Of Cinema • Geo Focus: India • Video Guide: Lighting • And More!



# SAME GREAT SOUND

## NEW IMPROVED PERFORMANCE

### GEMINI II

The Gemini II gives an incredibly large detailed and intimate sound reminiscent of the classic valve microphones from decades ago, but with all of the top end you'd normally associate with the best solid state mics on the market.

The all new Gemini II now has a 10dB pad and bass cut, a brand new brushed Aluminium PSU and lower s/n ratio. If you are after something that extra bit special you really must hear this microphone. Prepare to be amazed.

The NEW Gemini II now features:

- 10dB Pad
- Bass Cut Switch
- New solid aluminium power supply with lower signal to noise ratio
- New 'True-Lock' locking shockmount

"I love the warmth, fullness, presence and fat sound of the Gemini II"

**STEVIE WONDER**

### PORTABLE MIC BOOTH £229

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Reflexion  
Filter**

Patent Pending



"I am incredibly impressed by the seemingly contradictory combination of warmth, crispness and definition that was captured in the tracks by the sE Gemini II and sE Reflexion Filter. It was a beautiful, natural sound - we didn't even use any EQ!"

**DON WAS**

Bob Dylan, The Rolling Stones,  
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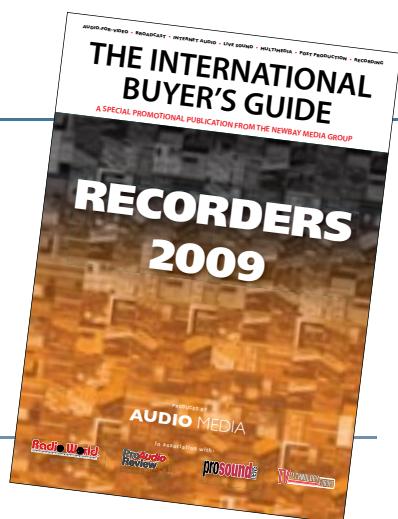
### DIGICO SD8 66

If you're going to do something at all, you might as well do it well. SIMON ALLEN finds a console that does everything very well indeed, and with panache to boot.

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January isn't all dark and dismal: we give you something to look forward to for the year – all the up and coming must-attend trade events of 2009. Scribble them in your diaries right away.

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## leader



Something I've always admired in the creative industries is the passion with which people go about their business. But something I admire more is the way that the passion is channelled and managed.

You know the feeling when someone tampers with something you've agonised over for far longer than the millisecond it took to cut it or mangle it? It's a gut feeling of sickness, anger, and frustration that, as far as I'm aware, is absolutely linked to the passion that makes the difference between solution and creation. To merely solve a blank track, or an awkward environment, or a mute action, or an EQ issue is a job for the factory floor; but to *create* an addition to the project, to make a sound that adds to the whole and not just that moment, or to finesse an arrangement so it affects the art, is a job for that passion.

So what is it about this ethereal substance – the non-material investment – that can incite the soul to boiling point? How much money, for example, would you have to inexplicably lose to feel comparable nausea? And should you bring it with you, knowing how destructive it can be?

The latter question is easy to deal with. It's irrelevant. You couldn't get the job done to any sort of acceptable level if you didn't bring the passion with you. What's incredible is that everyday individual creatives wrestle with this ineffable substance to produce a team effort – a product that is a combination of many opinions, many contributions, many creations, and many passions.

That anything gets done in that context is amazing, and when it gets done well, it's awe-inspiring.

And then there's perspective. Walk out of the studio into the real world – experience something genuinely important there, and the problem becomes one of incompatible perspectives. How can something in the studio bubble seem so important when from the bigger bubble it's so utterly inconsequential? It's either an indication of a very special kind of passion, or just one explanation for recreational drug use. Or both.

Everybody has to deal with 'the passion'. When you start, it can have overwhelming effects for many different reasons. When you're a little more experienced, you realise that others have their own passion and yours might take the odd knock to make way – but that it's all for the good. And even when you've been dealing with it for years, it has a habit of popping up and kicking you in the head. Sometimes you might even have to work hard to keep it significant when it looks a little shaky from where you're standing. Understand that it's both an immeasurable asset and a huge liability... but also understand that it's not optional.

*Paul Mac, Editor*

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\*Within Broadcast & Production

#### NEW PRODUCT



Massachusetts-based computer-peripherals developer MOTU has released the Traveler-mk3, a mobile Firewire audio interface for Mac and Windows. The Traveler-mk3 is designed for portable recording applications, and provides eight channels of 192kHz analogue recording and playback, combined with twenty channels of digital I/O in ADAT optical, AES/EBU, and S/PDIF formats. The unit draws power from its firewire connection to the computer, but can alternatively be powered by a field battery pack for extended on-location sessions.

[www.motu.com](http://www.motu.com)

#### WORLDWIDE



iZotope, Inc., developer of tools for musicians and audio professionals, licensed several audio technologies to Sony for its recent release of the ACID Pro 7 Digital Audio Workstation. The ACID Pro Effects Rack bundle includes Flanger, Phaser, Analog Delay, and Dynamics effects powered by iZotope DSP technology. "With our inclusion in ACID Pro 7, iZotope continues its mission to provide effects processing that helps musicians and audio professionals create the highest quality audio productions possible," commented Mark Ethier, iZotope's CEO.

[www.izotope.com](http://www.izotope.com)

#### GERMANY

##### Bach's Organ Grinder

German specialist classical recording company Aeolus has been recording Bach's complete organ works in surround and stereo for Hybrid Super Audio CD. Played by Ewald Kooiman, a renowned Dutch organist and Bach expert, the performances have been captured using DPA 4006 omnidirectional mics. All organs were built in the 18th century by father and son team Andreas and Johann Andreas Silbermann, and are located in historic churches in the Alsace.

"For our recordings we use two completely independent setups," explains Aeolus' Christoph Frommen, "one surround setup with five discrete channels, and an additional two-channel stereo setup. We sometimes use two or four more channels for capturing additional ambience. The microphones we use are all DPA's famous 4006 omnis, of which we own thirteen."

Frommen uses a surround microphone installation known as the Polyhymnia Pentagon, which draws on the proportions of the surround pentagon defined for loudspeaker installation. An AB setup was used for the stereo recording.

Frommen is impressed by the performance of his DPA 4006s; "Hardly any other omnidirectional microphone is able to match the clearness and the undistorted sound of a small diaphragm microphone like the 4006."

##### DPA Microphones

+45 4814 2828

[www.dpamicrophones.com](http://www.dpamicrophones.com)

#### WORLDWIDE

##### Accio Audio

Earthworks, manufacturer of the High Definition Microphones range, has announced that its FlexWand High Definition Microphone is now shipping worldwide. The FlexWand makes its debut following the introduction of the Earthworks PianoMic System, winner of multiple industry awards including the prestigious Mix Foundation's TEC Award for Outstanding Technical Achievement.

The FlexWand is a microphone solution consisting of a fully integrated small diaphragm condenser microphone, stand, and boom. The flex mid-section and mini gooseneck on the wand allows the mic to be easily positioned between 1.5 and seven feet above floor level. Although it was originally designed for choral miking applications, it is also recommended for use with other sources, such as acoustic instruments, drums, and podium speech.

The microphone capsule has a frequency response of 30Hz-30kHz, and can handle up to 145dB SPL. It is available in both cardioid and hypercardioid patterns.

##### Earthworks

+1 603 654 2433

[www.earthworksaudio.com](http://www.earthworksaudio.com)



#### NEW PRODUCT



Smart AV is now shipping MonARC 2, a major upgrade to its MonARC monitor

applications for Smart Consoles.  
[www.smartav.net](http://www.smartav.net)

#### NEW PRODUCT



Sound Devices' CL-8 Controller is now shipping. It is a mixing control surface companion to the 788T digital 8-track recorder.

[www.sounddevices.com](http://www.sounddevices.com)

#### SHOW NEWS

Point Promotions has ended speculation about SBES 2009 by announcing the a date of November 3 for the Birmingham NEC-sited UK broadcast show. Now a one-day show, the organiser states: "...exhibitors and visitors alike will be able to meet and greet friends old and new on the same day..."

[www.sbes.com](http://www.sbes.com)

#### NEW PRODUCT



CharterOak Acoustic Devices has made its NAMM debut, demonstrating the new SCL1 discrete stereo compressor/limiter for one or two track production applications.

[www.charteroakacoustics.com](http://www.charteroakacoustics.com)

#### NEW PRODUCT

Time and Space are now shipping Drumtracker, a stand-alone multi-track audio to MIDI converter for drummers.

[www.timespace.com](http://www.timespace.com)



WORLDWIDE



Propellerhead Software has launched a database detailing a selection of Reason Rack set-ups, as used in high-profile public projects.

[www.propellerheads.se/substance/patch-charts](http://www.propellerheads.se/substance/patch-charts)

NEW PRODUCT



Melbourne-based manufacturer ARX has added the ISO-Combiner transformer isolated combiner to its Audibox range.

[www.arx.com.au](http://www.arx.com.au)

NEW PRODUCTS



Rycote has expanded its MiniWindjammer range. "A generic 'one size fits all' design isn't suitable," explained Rycote's Gabby Davies.

[www.rycote.com](http://www.rycote.com)

NEW PRODUCT



Moog Music is reproducing the Taurus I sound engine to release a limited run of the 70's iconic Taurus Bass Pedals.

[www.moogmusic.com](http://www.moogmusic.com)



UK  
**Black Beauty**

Audient's Black Series was recently put through its paces by Sean Kenny at Ten21 studios in Kent. The Black Series modules include a mic preamp, EQ, compressor, A-D converter, and a world-clock, all of which are mountable in a BR10 rack.

Although initially hesitant to try the Black EQ module, and feeling content with the performance of his ASP8024's onboard equalisation, Kenny was pleasantly surprised by its performance. Having experimented with a previously lacklustre guitar sound, he commented that, "the EQ has a fantastic tone, and the frequencies chosen just seem to sound musical and correct. The narrow-band cut is great too."

Following this success, Kenny was inspired to try and improve an overly grungy electric bass part using Black EQ's Glo low-frequency boost and in-line compressor, and routing the EQ output through the FET over-compression in Black Comp, with similarly positive results. "I thought the part sounded pretty good before we went through the Black rack," said Kenny, "but now it sounds even better".

**Audient**  
+44 (0) 1256 381944  
[www.audient.com](http://www.audient.com)

NEW PRODUCT

**Pro Tools 8 Available**

Digidesign has announced the immediate availability of Pro Tools 8 software, the company's highly anticipated next-generation music creation and audio production programme.

Pro Tools 8 is the latest version of the industry-leading digital audio workstation. A dramatically enhanced feature set is highlighted by a completely updated user-interface, more than 70 bundled plug-ins and virtual instruments, fully integrated MIDI and score editors, and an expanded array of editing features for both music and post production applications.

"Customer excitement for this release of Pro Tools is at an all-time high," commented Tex Schenkkan, Vice President of Audio at Avid. "We believe that this is not only in response to the substantial changes and additions we've made to the product, but also because so much of what's new came directly from customer feedback."

**Digidesign**  
+44 (0) 1753 655 999  
[www.digidesign.com](http://www.digidesign.com)



NEW PRODUCT



Boston-based pro-audio manufacturer Bricasti Design showed the Model 7 Stereo Reverb Processor and Model 10 Remote Console at this year's NAMM Show.

The Model 7 Stereo Reverb Processor features a new reverb algorithm called the 'True Stereo Reverb Process,' which is designed to accurately create true acoustic spaces. The unit features more than 100 reverb presets and a streamlined user interface that offers a total of 15 Parametric Program Parameters and 50 User Registers.

[www.bricasti.com](http://www.bricasti.com)

USA



Capitol Studios has acquired four new Royer R-122V Vacuum Tube Ribbon microphones. The world-famous facility is home to recordings from iconic artists such as Frank Sinatra, Dean Martin, and Nat King Cole, as well as being the scoring facility for hit US TV shows such as *Lost* and *American Idol*.

"We've had a long standing relationship with Royer Labs," commented Capitol Studios' Greg Parkin. "Our engineering staff regularly use Royer microphones in their work, and when the opportunity to acquire additional Royer mics arose, they overwhelmingly requested the R-122V's."

[www.royerlabs.com](http://www.royerlabs.com)

UK



Pinewood Studios has installed two further Euphonix System 5 mixing consoles. A 24-foot, 64-fader Euphonix System 5 dual-operator console was installed in Pinewood's Powell Theatre, while a 16-foot, 48-fader Euphonix System 5 dual-operator console was installed in Pinewood's Pressburger Theatre.  
[www.pinewoodgroup.com](http://www.pinewoodgroup.com)

NASHVILLE, USA



Paragon Studios recently put the finishing touches on its new Nashville picture-editing suite. This addition to the company's existing facilities completes its catalogue of services by allowing all AV post-production needs to be completed on-site.  
[www.paragon-studios.com](http://www.paragon-studios.com)



**HD OR NOT HD?**  
Blue has completed post-production work on an HD production of the Royal Shakespeare Company's *King Lear*. The production stars Sir Ian McKellen, and was filmed at Pinewood Studios. Blue aimed to heighten immersion and realism through its sound design and 5.1 mix. "With everything shot on a sound stage, you pick up a degree of ambience," commented Dubbing Mixer Phitz Hearne. Blue placed sounds such as horse hooves and additional dialogue in the 5.1 mix to enhance the sense of space.

"Producing a 5.1 mix can be as simple as making music come out of the different speakers," explained Hearne. "But if you want to use it artistically to engulf the audience and place them in the centre of the action, that's when you can begin to create a much more believable soundtrack by building layers and highlighting textures placed in each of the six speaker channels."

**Blue Post Production**  
+44 (0) 2074 372626  
[www.bluepp.co.uk](http://www.bluepp.co.uk)

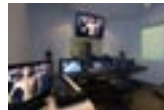
#### WAVE AMSTERDAM OPENING

Wave studios has opened a post-production house in Amsterdam. AKA Design was asked to design and produce the facility's interior.

"AKA likes to involve the client throughout the entire design stage, and this breeds creativity," commented Wave Studios' Creative Director, Warren Hamilton.

Wave Amsterdam consists of two surround studios, one Dolby EX Certified, and one separate pre-production suite. The facility's main recording and edit machine is a Nuendo, with a Euphonix System 5-MC control platform. "Building a studio from scratch was a perfect chance for us to experiment to make sure we chose the right gear to give us longevity," explained Hamilton.

**Wave Studios**  
+44 (0) 2074 398080  
[www.wavestudios.co.uk](http://www.wavestudios.co.uk)



#### NEW PRODUCT

TC Electronic has released Level Pilot, an analogue stereo volume control that aims to minimise expense and visible cabling.

[www.tcelectronic.com](http://www.tcelectronic.com)



#### NEW PRODUCT

Event Electronics is now shipping its new Opal studio monitor. The eight-inch, two-way studio monitor has been designed to eliminate distortion.

[www.event1.com](http://www.event1.com)



NY YORK, USA



Masterdisk Studios' Dave McNair recently installed the Dangerous Monitor in his New York Mastering Suite.  
[www.dangerousmusic.com](http://www.dangerousmusic.com)



**Xynergi**  
media production centre

Pure Inspiration

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[www.fairlightau.com](http://www.fairlightau.com)

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**APx525 and APx520 two channel audio analyzers**, new from Audio Precision, the recognized standard in audio test.

One-click measurements, automated sequences, and the intuitive UI of the award-winning APx Series, with  $-108$  dB typical THD+N and new tests for two channel applications. No other audio analyzer is faster or easier to use.

There's no need to compromise: pricing starts under \$10,000 in the US.

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**Diary of Events  
2009****February 2-5**

CSTB 2009  
Moscow, Russia

**February 4-7**

AFIAL Convention 09  
Madrid, Spain

**February 11-13**

35th AES Conference  
London, UK

**February 17-19**

Broadcast LIVE  
Earls Court 2, London

**February 23-25**

BES EXPO 2009  
New Delhi, India

**March 3-5**

CabSat 2009  
Dubai, UAE

**March 3-8**

CeBIT 2009  
Hannover, Germany

**March 4-5**

Australian Broadcasting Summit  
Sydney, Australia

**March 4-6**

InfoComm India 2009  
Mumbai, India

**March 5-7**

China International Expo  
Guangzhou, China

**March 18-20**

Convergence India  
New Delhi, India

**March 23-24**

Integrated Systems Middle East & Africa  
Abu Dhabi

**March 25-27**

IPTV World Forum 2009  
Olympia, London

**March 30 - April 2**

ShoWest  
Las Vegas, USA

**'ALL THE WORLD'S A STAGE'**

On December 13, 2008, Johannesburg's Sandton Convention Centre played host to the Miss World 2008 competition. The event crowned Miss Russia, Kseniya Sukhinova as its winner, and was broadcast live over SABC to two billion people by 373 TV stations across more than 200 countries.

The ceremony used the resources of six Gearhouse Group companies, encompassing a spectrum of technical production disciplines.

Gearhouse Audio's Dave Tudor designed an L-Acoustics sound system with nine Kudo boxes per side, making use of the K louver function by widely spacing the main hangs. This meant that the asymmetrical setting was able to minimise any reflections, and ensure even coverage.

**Gearhouse South Africa**  
[www.gearhouse.co.za](http://www.gearhouse.co.za)

**OSB SPLASHES OUT WITH LAWO**

Auckland-based facilities provider, On Site Broadcasting, will take delivery of its third HD vehicle in February 2009. All three of the full HD outside broadcast trucks house Lawo mc266 digital consoles.

When choosing a console, OSB's Operations Manager Lex Walker had to consider the growing demand for surround sound on projects. This consideration, along with his experience with its equipment, encouraged Walker to invest in Lawo's mc266.

"When we chose Lawo, price was not the main factor," explained Lex Walker, OSB's Operations Manager. "There were other options we could have gone for that were less expensive, but none of those offered us the quality, power, and versatility of the Lawo consoles."

On Site Broadcasting  
[www.osb.co.nz](http://www.osb.co.nz)

**NEW PRODUCT FOR IMPROVED WORKFLOW**

Oxygen DCT has released a new universal GPI controller, and delivered the first batch to Channel Four Television. The new product aims to improve workflow and add versatility to broadcast studios and control rooms by giving fingertip control on the desktop.

The OxBox GPI-Box6 is a compact desktop controller that allows general purpose interface functions to be controlled from six user-programmable push buttons, removing the need for users to design and manufacture custom control panels.

The unit can drive TTL high and low outputs to external circuits, such as a router, switcher, or video monitor, and will also be available in IRU 19-inch rack-mount form.

Oxygen DCT  
[www.oxygendct.com](http://www.oxygendct.com)

**RME International Distributors****North America**

USA, CANADA: Synthax Inc., [www.synthax.com](http://www.synthax.com)

**South America**

CHILE: Videomedia LTDA., [www.mediaycom.cl](http://www.mediaycom.cl)

**Europe**

BULGARIA: Almar Co. Ltd., [www.almar.bg](http://www.almar.bg)

CROATIA: Neuron, [www.neuron-d.com](http://www.neuron-d.com)

CZECH REPUBLIC: Disk Multimedia s.r.o., [www.disk.cz](http://www.disk.cz)

DENMARK: Soundworks, [www.soundworks.dk](http://www.soundworks.dk)

ESTONIA: IS Music Trading Ltd., [music@online.ee](mailto:music@online.ee)

FINLAND: Studiotec Oy, [www.studiotec.fi](http://www.studiotec.fi)

FRANCE: SCV AUDIO, [www.scv.fr](http://www.scv.fr)

GERMANY, AUSTRIA: Synthax GmbH, [www.synthax.de](http://www.synthax.de)

GEORGIA: AES-Georgia, [www.aes-georgia.com](http://www.aes-georgia.com)

GREECE: Logotheris Music, [www.logotherismusic.gr](http://www.logotherismusic.gr)

HUNGARY: Midisoft Studio Kft., [www.midisoft.hu](http://www.midisoft.hu)

ICELAND: Tonabudin Ltd., [www.tonabudin.is](http://www.tonabudin.is)

IRELAND: Future Sounds, [www.futuresounds.ie](http://www.futuresounds.ie)

ITALY: MidWare Srl, [www.midware.com](http://www.midware.com)

LITHUANIA: Midiaudio Ltd., [www.midiaudio.com](http://www.midiaudio.com)

NETHERLANDS, BENELUX: AudioAG, [www.synthax.nl](http://www.synthax.nl)

NORWAY: Prolyd, [www.prolyd.no](http://www.prolyd.no)

POLAND: Audiostacja s.c., [www.audiostacja.pl](http://www.audiostacja.pl)

PORTUGAL: Audiolog, Lda, [www.audiolog-lda.com](http://www.audiolog-lda.com)

ROMANIA: A.V. Audio Sys s.r.l., [www.avaudiosys.ro](http://www.avaudiosys.ro)

RUSSIA: 4Sonic, [www.4sonic.ru](http://www.4sonic.ru)

SERBIA, MONTENEGRO: Artist d.o.o., [www.artistysystems.co.yu](http://www.artistysystems.co.yu)

SLOVAK REPUBLIC: Sound Service, [www.soundservice.sk](http://www.soundservice.sk)

SLOVENIA: MTD, [www.mtd-ek.si](http://www.mtd-ek.si)

SPAIN: Microfusa, [www.microfusa.com](http://www.microfusa.com)

SWEDEN: Fitzpatrick Import Group S.A., [www.fitzpatrick.se](http://www.fitzpatrick.se)

SWITZERLAND: Music Network GmbH, [www.musicnetwork.ch](http://www.musicnetwork.ch)

TURKEY: BL Music Co. Ltd., [www.blmusic.com](http://www.blmusic.com)

UKRAINE: Real Music Ltd., [www.realmusic.ua](http://www.realmusic.ua)

UNITED KINGDOM: Synthax Audio UK Ltd., [www.synthax.co.uk](http://www.synthax.co.uk)

**Asia and Pacific Rim**

AZERBAIJAN: Promix, [www.promix.az](http://www.promix.az)

AUSTRALIA, NEW ZEALAND: Innovative Music Australia Pty Ltd.  
[www.innovativemusic.com.au](http://www.innovativemusic.com.au)

CHINA: Central Music Co., [www.centmus.com](http://www.centmus.com)

HONG KONG: Central Music (HK) Ltd., [www.centmus.com.hk](http://www.centmus.com.hk)

INDIA: Modi Digital Audio Pvt Ltd., [www.modidigital.com](http://www.modidigital.com)

JAPAN: Synthax Japan, [www.synthax.jp](http://www.synthax.jp)

KOREA: Soundrat, [www.soundrat.com](http://www.soundrat.com)

INDONESIA: M-Station, [www.m-station.biz](http://www.m-station.biz)

THAILAND, CAMBODIA, MALAYSIA:

KDM Trading Co Ltd., [www.kdm.co.th](http://www.kdm.co.th)

TAIWAN: MidMail Inc., [www.midmail.com.tw](http://www.midmail.com.tw)

**Middle East**

ISRAEL: Music-Shop LTD., [www.music-shop.co.il](http://www.music-shop.co.il)

UAE, EMIRATES: Thomson Trading Est., [www.thomson.ae](http://www.thomson.ae)

IRAN: Raajmaan System Ltd., [www.raajmaan.com](http://www.raajmaan.com)

**Africa**

SOUTH AFRICA: Tuerk Music Technologie, [www.tuerkmusic.co.za](http://www.tuerkmusic.co.za)

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## PALME India On Evolutionary Path

New deals and new distributorships highlight third successful show.

Exhibitors at the third PALME India trade show in Mumbai remained united in praising the quality of this year's event, with over 3,000 professionals from the professional sound, light, music, audio visual, and systems integration industries visiting the Bombay Exhibition Centre.

Over the course of the three days, new distributors were appointed and major deals were struck, as further evidence of how quickly the sub-continent's infrastructure is maturing.

Two who noted this fact were Aashish Mutha, Director of Uniword Telecom, and Avinash Dowlwani, who runs AVI Electronics in Dubai. "We had met our objectives by the second day of the show," said the latter, while Mutha said that the quality of visitor had improved greatly in 12 months.

Hussam Al Haddad, General Manager

of Ateis Middle East, added his own testimonials. "Generally it's been a great show, and the launch of Ateis' complete automation range couldn't have been met with a more favourable reception."

Praise for the improved quality of visitor was borne out by the quantity of business transacted at the show. Customers included Mumbai-based audio solution providers Sound.com and SNL Pro. And there was cause to celebrate for Mauricio Saint Martin and his team from Meyer Sound, who were able to announce a new national distributor.

Meyer Sound has expanded its distribution network by elevating Bangalore-based Reynold's Sound & Lighting to this role, and by appointing two new dealers to ensure effective sales support for the entire country – Modern Stage Services in New Delhi for Northern

and Eastern India, and Mumbai-based Groove Temple Entertainment for the Western Indian sales territory.

A Meyer Sound dealer and user since 2000, Reynold's will continue this role to serve customers in the southern region of India. In addition, the company assumes the responsibilities of a master distributor, providing technical support, product servicing, and coordination of educational programs for the Indian professional audio market.

"I'm excited to be part of this milestone for Meyer Sound in India," said Felix Remedios, Managing Director of Reynold's Sound & Lighting, while Mauricio Saint Martin, Director of Middle East sales for Meyer Sound, added, "With these appointments, we have the right team, and we will work closely with them to take Meyer Sound to the next level."

Away from PALME India's shop floor the seminar sessions were packed; in particular, visitors were eager to learn from the show's keynote speaker, Prof. Dr. Wolfgang Ahnert, whose company ADA developed the EASE modelling software back in 1990.

And in the sound proofed demo room, Coda Audio was having a busy show. Said Marketing Director Nina Christoffer, "We were impressed that the name was so well-known in India although this was our first appearance at an Indian exhibition. We received a



**Meyer Sound sign new distributorship.**  
From left to right: Davinder Wadhwa, Modern Stage Service; Mauricio Saint Martin, Meyer Sound; Kaveer Shahani, Groove Temple Entertainment; Felix Remedios, Reynold's Sound & Lighting.

great response from the high quality visitors who visited our demo room, and we expect to receive good leads in the coming weeks.

Also attracting the crowds was Modern Stage Service's Bollywood dance showcase, which again drew large audiences to its massive integrated technology 'village' and captured the festive spirit of the city. "We were very happy to support this event in such a big way," commented Davinder Wadhwa.

By the end of this highly successful show, it became clear to trade fair organisers, IIR Exhibitions, that the expo may be ready to evolve into its next phase. After mounting a successful launch campaign in India's Bollywood capital there is now a groundswell of exhibitors asking IIR to repeat the formula in a different location in 2009.

The 2009 edition of PALME India is also likely to occupy a different date in the calendar – away from the Festival season. Exhibition organiser, James Raffoul, said, "We can look forward to the future as PALME India has become a permanent fixture in the Indian industry calendar."

*Bollywood dancers on the Modern Stage Service stand.*

## Live Earth India Cancelled

The Live Earth India concert, scheduled to be held in Mumbai last month (December), was called off in the wake of the attacks in India's financial capital that killed nearly 200 people, organisers said. Jon Bon Jovi, Roger Waters, and Bollywood superstar Amitabh Bachchan were to share the stage at the December 7 event to raise funds for lighting homes with solar energy in places where people do not have access to electricity.

"Due to circumstances beyond our control, we are saddened to announce that Live Earth India has been called off," organisers said in a statement.

"We are all shaken up by this event, and even though we believe in the cause of global warming, we have indefinitely postponed the Live Earth concert," said Viraf Sarkari, Director of the Wizcraft event management firm.

Sarkari also said many international artists were bound by advisories issued by their countries asking citizens not to travel to India, making this an 'overriding factor' in the decision to cancel the concert. "We have artists like Jon Bon Jovi and Roger Waters, so we had to take this into account as well," he said.

### MEDIA MATTERS

Broadcasting in India has flourished since state TV's monopoly was broken in 1992. The array of channels is still growing. Privately-owned cable and satellite stations command large audiences. Star Plus – run by the global media giant News Corporation – is one of the most popular. Its version of the game show *Who Wants to be a Millionaire?* proved to be one of the channel's biggest draws.

News broadcasts are also popular, often outperforming entertainment shows. Many 24-hour news channels are up and running and more are planned. Doordarshan, the public TV service, operates 21 services including its flagship DD1 channel, which reaches some 400 million viewers.

Two multi-channel, direct-to-home (DTH) TV operations – the Zee Group's subscription-based Dish TV and a free-to-air offering from Doordarshan – are recent arrivals on the satellite scene. A third DTH venture, Tata-Sky, launched in August 2006. India's cable TV market is one of the world's largest, with more than 60 million subscribers.

Private radio is a relative newcomer. Since they were sanctioned in 2000, music-based FM stations have proliferated in the cities and hundreds more licences are up for grabs. But only public All India Radio (AIR) can broadcast news.

### VITAL STATISTICS: INDIA

|                                    |                                                                                                                                                            |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>POPULATION</b>                  | 1.1 billion (UN, 2007)                                                                                                                                     |
| <b>CAPITAL</b>                     | New Delhi                                                                                                                                                  |
| <b>MOST-POPULATED CITY</b>         | Mumbai (Bombay)                                                                                                                                            |
| <b>AREA</b>                        | 3.1 million km <sup>2</sup> (1.2 million miles <sup>2</sup> ), excluding Indian-administered Kashmir (100,569 km <sup>2</sup> /38,830 miles <sup>2</sup> ) |
| <b>MAJOR LANGUAGES</b>             | Hindi, English, and at least 16 other official languages                                                                                                   |
| <b>MONETARY UNIT</b>               | 1 Indian Rupee = 100 paise                                                                                                                                 |
| <b>MAIN EXPORTS</b>                | Agricultural products, textile goods, gems and jewellery, software services and technology, engineering goods, chemicals, leather products                 |
| <b>GNI PER CAPITA</b>              | US \$950 (World Bank, 2007)                                                                                                                                |
| <b>INTERNET DOMAIN</b>             | .in                                                                                                                                                        |
| <b>INTERNATIONAL DIALLING CODE</b> | +91                                                                                                                                                        |

## The Great Indian Rock 2008 At Bangalore

The Palace Grounds in Bangalore, India, were transformed on November 7, 2008, into a celebration for thousands who turned out for The Great Indian Rock 2008. Bangalore transcended into the Rock Capital of India with an international concert that featured three prominent Indian bands, Slingshot, Rainbow Bridge, and Extinct Reflections, and two Norwegian popular acts, Sahg and Satyricon. V&P Sound deployed an extensive Harman sound system that featured Soundcraft's Vi6 and included products from JBL, Crown, dbx, and AKG.



The sound system consisted of 20 JBL VertecVT4889's with two main hangs of 10 per-side, 16 JBL Vertec VT4880A subs were flown in on four per-side hangs, eight JBL CSR subs were ground stacked with four per-side, and JBL VRX932LA's were used as centre-fills. Crown I-Tech 4000, 6000, and 8000 amplifiers powered the entire system, and the FOH was mixed using the Soundcraft Vi6 digital mixing console running the new Version 3.0 software.

Svein Solberg, Satyricon's FOH Engineer, was working on the Vi6 for the first time and stated, "This is as comfortable as working on any analogue console, and the ease of operation allowed me to mix on the console with little prior experience. The Vertecs are loud and clean

sounding boxes, and this is indeed the best sounding system that we've operated in India."

Vishnu, Director of V&P Sound, was overwhelmed with the overall response from the artists, the FOH Engineers, and the fans. Vishnu stated, "It is a pleasure working with the Vi6 and the Vertecs. Setting up the Vertec system is extremely fast and simple, and the amazingly clean sound is credited to the V4 presets developed by Paul Bauman, Director of tour sound product and application engineering."

The stage monitoring system was equipped with 10 VRX915Ms, two VRX915Ms, and two PRX518S/230s along with two PRX 512M/230s used as the drum-fills. The side-fills were four VRX932LAs and four VRX918Ss. The monitors and side-fills were bi-amped using Crown ITechs and managed by another dbx DriveRack 4800.

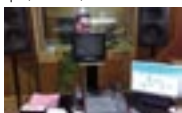


## UTV Invests In Allen & Heath

One of India's leading global integrated media and entertainment groups, UTV, recently purchased the new Allen & Heath ZED-12FX USB mixer for its dubbing division.

UTV is involved in production and distribution for movies, broadcasting, interactive (gaming), television, and new media (Web, mobile, and IPTV). Based in India, the company has operations across the UK, USA, Middle East, and Australia, and has one of the biggest dubbing facilities in India with a presence in three Indian cities. UTV's client list includes National Geographic Channel,

The History Channel, Bindass, Disney, TV18, and Hungama TV.



The new ZED-FX mixer has been installed in UTV's Delhi sound studios, which have state-of-the-art dubbing equipment.

"Since we founded the business in 1990 we have installed Allen & Heath mixers in our studios as they always meet our requirements and budget," explains UTV Dubbing Division's Technical Manager, Rajesh Nair. "The ZED-FX is the perfect solution for the dubbing studio, as we only needed a few inputs but good quality effects for TV production."

## JBL Praja

An enthusiastic crowd of more than one million gathered to witness and support the establishment of a new political party in India. Launched by Chiranjeevi, one of the biggest stars in the Indian film industry who has now entered into politics, the new party's name is Praja Rajyam (People's Rule). The fledgling party's event organisers chose the Ava Lila Tank site in the city of Tirupati, located in the state of Andhra Pradesh, to unveil its political programme. Speeches, film clips, and choreographed dance segments were included in the event. Sound reinforcement services for the ambitious multi-media outreach were supplied through a coordinated effort by Taher Sound & Lights of Hyderabad and V&P Sound of Bangalore. "The venue selected for the huge outdoor gathering was very wide, and four main scaffold-based array hangs were designed for long-throw coverage, including a total of 44 JBL VT4889 full-size line array elements," said Zakir Hussain of Taher Sound & Lights.



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# New Tricks For The Old School

Independent cinemas and arts theatres, although showing classic films, are also looking to the future with digital technology.

KEVIN HILTON visits the Lexi, now fully digital.

These days small local cinemas are often known as art houses, a slightly sniffy term applied to independently owned and minded movie theatres trying to recreate the past by showing older films, cult movies, and foreign language titles. They may look back in this way, but many are also looking forward and taking advantage of digital, or electronic, cinema (d- or e-cinema, depending on your preference).

The basic idea is that films are made in the digital domain, with footage stored as data, rather than on film or videotape. This reduces costs because there are no multiple negatives or large numbers of finished prints. The main feature is instead kept on a central server and screened as digital images through a projector that looks like its forebears but which is also based on digits.

Replacing the infrastructure in cinemas up and down the country is a considerable and costly proposition, for the big multiplex chains and independent operators alike. This was recognised by the UK Film Council and Arts Council in 2007 when the Digital Screen Network (DSN) was established. The scheme handed out over £12 million of National Lottery cash, enabling 210 cinemas (in effect 240 screens) to install digital projectors and the supporting hardware in England, Scotland, Wales, and Northern Ireland.

Big multiplexes operated by Vue and other national operators were among the benefices, but art houses also got a share. In return for this generosity the cinemas pledged to give more screen time to a wider choice of what are described as 'specialised films', in other words non-Hollywood, classic, and foreign language movies.

By their nature these films have a much smaller potential audience than a big, general appeal release like a Bond film. The government and industry bodies like the UK Film Council want to stimulate the British film industry, and ensuring the potential audience for what is produced can see the films is as important as helping productions get off the ground in the first place. New technology is seen as crucial in distributing minority interest titles, as a digital copy costs approximately one tenth of a 35mm print, which can be around £1,500.

The Kino Hawkhurst in Kent is regarded as the first all-digital small independent movie theatre in the UK, opening just over

"Replacing the infrastructure in cinemas up and down the country is a considerable and costly proposition, for the big multiplex chains and independent operators alike."

two years ago with funding from DSN and a sound system designed by Munro Acoustics. Andy Munro applied similar design techniques he used for post-production suites and dubbing theatres to create the system for the Kino and recently extended the concept at the Lexi Cinema, which opened in the Kensal Rise area of northwest London during October 2008.

The Lexi is part of the Pinkham Lighthouse project, established by Sally Wilton, a businesswoman who has lived in Kensal Rise for 25 years and wanted to give something back to the community, particularly after freak winds devastated the area in 2006. Wilton had also harboured an ambition to run an independent cinema and sold her etc venues business to finance the new venture, which she knew had to be digital. "It's the way of the future," she says.

The Lexi missed out on DSN funding, so the refurbishment of the Edwardian theatre that houses the cinema and the

general Pinkham Lighthouse facilities, as well as the technical installation, was financed wholly by Wilton. It is run as a charity, with all profits going to going to the Sustainability Institute, an eco-village in the Winelands of South Africa.

From the beginning, Wilton wanted the Lexi to do and offer more than just films. As well as screening new releases and re-issues, it will have the more esoteric one-offs and seasons associated with the art house circuit. Then there is the community aspect; Wilton is keen for local filmmakers to create a 'film market' as an outlet for personal pieces and emerging talent.

With her background in corporate presentations, Wilton also wants the Lexi to be a venue for product launches and conferences, as well as live music and dancing. This idea of a flexible, multi-purpose venue called for audiovisual equipment that was suitably adaptable, and sound is a key component.

With 1,700 ft<sup>2</sup> of internal space, a total of 80-seats, plus the 16-seater VIP gallery known as the Commander's Box, the Lexi is what Andy Munro calls 'the ideal size for an art house cinema'.

Munro favours line array loudspeaker systems for dubbing rooms and small picture houses: "This approach is only



suitable for smaller spaces, between 150 to 200 seats or an area up to 200m<sup>2</sup>. Above that we'd be looking at a horn-loaded system. The Lexi is a very nice size of room for what it is doing, because anything bigger is more theatrical, which needs a more theatrical system as modern films are getting louder and louder, with greater compression on the mixes."

As much of the original building was retained Munro says the sound proofing was 'half way there'. The 'typical' Edwardian walls, roof, and parquet floor gave the acoustics team a solid foundation on which to get responses below NR25. Munro works to the Dolby Premier spec but, he says, takes that a 'little bit further' to achieve a more detailed sound from what is heard in the average multiplex.

The Lexi features two installations by Sculptor and Lighting Designer Bruce Munro (no relation), one of which gives the sound an extra dimension Andy Munro was not expecting. Suspended from the ceiling

of the auditorium is an extravagant fibre optic chandelier creation, which brightens the overall sound. "Because the HF is usually absorbed by people, most cinemas sound a little dull," explains Munro. "The glass puts back the missing sparkle and produces a better sound. We've achieved a balanced acoustic in the Lexi, not too long in LF or too short in HF."

The loudspeaker system is based on the Dynaudio M range, with the left, centre, right front array consisting of hybrid M3FX cabinets. The subwoofer, a dual 18-inch design, is custom built, as are the 12 surround loudspeakers, which are derived from the Dynaudio BM15 small studio monitor. The system is powered by MC<sup>2</sup> T2000 amplifiers producing 1,000W per channel at 4Ω.

"That's a lot of headroom," Munro acknowledges, "but the multiplexes are putting in big power amps, which is all part of the quality process." Munro prefers to use independent digital crossovers, in this case the TC Electronic XO24.

Andy Munro sees digital as the future for cinemas, with satellite delivery and fuller automation

the next step. "The multiplexes will embrace digital if it saves them money," he says. "The indies will want it if it makes life easier for them, but they also have to offer something the multiplexes don't. Otherwise people will stay at home and watch Blu-ray."

The majority of art house cinemas, the Lexi included, do have that something extra, whether it's just the surroundings or organic wine and Fair Trade chocolate, and 3D could be another attraction in the future. But life is never easy in the independent sector. The Kino was a pioneer but its holding company went into receivership in October 2008, although it continues to operate under new management.

The Lexi is in more familiar art house territory – northwest London – and, with the technological support of digital, we can hope it will prosper and give a quantum of solace to others who feel the local cinema is for the community, and is not just about trend-led Hollywood fodder with interchangeable stars. **AM**

"This idea of a flexible, multi-purpose venue called for audiovisual equipment that was suitably adaptable, and sound is a key component."



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## Pimp My Riot Van

Youth charity has a riot with mobile recording studio

DAVID MACKENZIE takes a look at an unusual studio conversion that is improving the lives of young people in London.

Last summer, a Metropolitan Police Superintendent sat on a plane next to an MTV Producer. During the course of that flight, the pair discussed MTV's hit show *Pimp My Ride UK*, and the work being done in London by youth charity XLP. The result of this conversation was a plan to create a one-off special of Tim 'Big Dog' Westwood's *Pimp My Ride UK*, featuring the transformation of a police riot van into a mobile recording studio for use by XLP.

Guy Wilson, Managing Director of AKA Design, was recruited to work on the project, and quickly volunteered to donate his company's time and resources.

The motivation to create a mobile studio came from XLP's desire to reach a wide range of young people from across London. Unfortunately, this ruled out the possibility of creating a static facility, as young people felt unsafe travelling to areas seen to be the territory of other groups.

As a father of two teenagers, this subject is close to home for Guy. "A lot of these kids don't have great family lives, and they want to get out of the house," he explains. "If this van can stop one person from getting into trouble, then it's been a success."

### Rock Tour Who?

One of the most challenging aspects of the project was the task of installing a sophisticated system, with a significant amount of equipment, in such a limited space. AKA Design addressed this problem by creating extensive 3D models of the van's interior, and strictly following

the resulting design.

The outcome of these plans was a facility more like a certain police callbox than a police riot van. "The hardest bit was putting something in every square inch of the thing," explains Guy, "it really is a tardis."

The team seems to have risen to this challenge spectacularly, assembling a functioning studio with sufficient working space and seating for four people, and a separate vocal booth, all within a standard-sized police van.

Despite the space restrictions, Guy was adamant that the studio needed a physical control surface; "something that would give it the feel of a studio, but nothing too complicated." Digidesign donated a 003 Factory, to give hands-on control of a Pro Tools LE solution through an integrated control surface. The power-to-size ratio of this piece of equipment was ideal for the facility's compact design.

### Plop Idol

Unsurprisingly, the acoustics in the van were less than ideal to begin with. "It was like a public toilet when we started," says Guy.

The rubber tyres of the van naturally provided significant isolation. However, this was not a major consideration to Guy, who prioritised the acoustics within the space over isolation from the outside world and between booth and studio. "If you screamed in the booth, you would hear it in the other room," he confesses, "but we

never got to a point where we had any feedback."

To improve on the acoustics within the space, AKA began by packing out all of the voids in the van's double skin with rockwool. Confronted by 8mm of bullet-proof (and therefore drill-proof) internal armourment, they filled the space with rockwool, and sealed the whole thing up. Added to this, the metal checker-plate floor was replaced with rubber checker-plate, the walls and roof were covered with acoustic foam, and various gaps were filled with yet more rockwool.

"It sounds a lot better than I even hoped for," says Guy. "The head height was only six-foot, and it is a metal skinned room, so there were certain things that we just couldn't do, but for such a small space, it actually sounds very good."

### 'A Studio, But Not As We Know It'

As you might expect, such an unusual project brought with it an array of equally unusual considerations. One such consideration was that the studio had to be made traffic and speedbump-proof, to prevent damage to equipment. Accordingly, each speaker was rubber

mounted, and all cupboard panels were double mounted. "There are lots of those strange little considerations that you'd never come across in a normal studio," says Guy.

Another aspect that was of vital importance to the facility was its prospective power source. The team wanted it to be capable of working off its own power. To achieve this, the van was adapted to run seven batteries at 240V. This process required caution, as the adaptation from 12V to 240V raised concerns when running computers. Fortunately, no dramas arose.

The facility also has a lead that allows it to be mains-powered when in use for a prolonged period.

### Changing Fumes

The resulting facility looks great on screen, but is equally impressive in the flesh... if flesh were made of polymer plastic. Guy is strongly of the opinion that, while the facility was made possible by television, it is not a gimmick, and has the potential to do great things beyond the show. "I can really see it being used," he says. "Television has allowed it to happen, but unlike a *Changing Rooms* episode where five minutes after shooting, the sticky back plastic falls off, I think that this will carry on to be a bit of a workhorse."

Guy was even lucky enough to have the bottom of his car tricked out with blue neon lights during the project (presumably at least partially against his will). However, he speaks fondly of the project, and all those who were involved.

"The biggest kick for me was definitely the release... the kids just jumped in it, and within ten minutes they were properly using it."

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The newest branch on AKG's 'C'-series family tree leans towards the 'bright' end of the spectrum, says ROBIN GIST.

The latest release from AKG's lauded microphone stable is the C214 side-address condenser. Adding its name to a (lengthy) string of classic microphones that date back to 1953 (when the legendary C12 valve microphone was first introduced), the C214 has quite a reputation to uphold. Designed, engineered, and built in Vienna, the fixed-cardioid pattern C214 is intended as a cost-effective alternative to the C-414, while still offering large diaphragm performance, wide dynamic range, rugged construction, and a sound similar to that of the C-414 B-XLS. The AKG C-414 with its myriad suffixes and variations, is in turn, a direct descendant of the C12A, which was the first mic in the AKG lineage to sport the highly recognisable faceted body styling.

emulate the original 'brass ring' sound, and this version was used in the C-414 B-TLII and C12VR microphones that were released in the early '90s.

### Not The Golden Ring

While researching this review, I came across a brochure supplied by AKG that states about the new microphone: "Because the C214 uses the same one-inch diaphragm as the C-414, the essence of that heralded C-414 sound has been captured in this newest model." Actually, while the C-414 uses a DC-polarised capsule, the C214 uses an electret capsule that is technically closer to those found in the AKG C3000 and C4000 microphones. The C214's capsule is, in fact, only one half of a 414 capsule, with



#### THE REVIEWER

ROBIN GIST is an audio engineer and regular contributor to *Audio Technology* magazine, Australia.

The 'brass ring' CK12 was later replaced by a different sounding nylon version that was cheaper to produce. AKG later designed yet another capsule that tried to

## AKG C214

### Large Diaphragm Condenser Microphone

#### Encapsulating The History

As with any microphone, the capsule is the all-important heart of the device. Arguably one of the most revered and famous capsule designs is the precision built AKG 'brass ring' CK12, found in the valve C12 microphone and later C12A(&B) models, which also incorporated the metal cased Nuvistor valve. For commercial and export reasons the CK12 was also used in the Elam/Telefunken M250 and M251 microphones, but with different valves and electronics.

the addition of the 'patented back-plate', which turns the combination into an electret capsule. As a result, the C214 has a higher noise floor – at 13dBA – when compared to the C-414's lower 6dBA. There's nothing wrong with modern electret condenser microphones of course, except for this higher noise floor.

#### C For Construction

Like all previous AKG 'C'-series mics, the C214 is a solidly built microphone, constructed from a scratch resistant, die-cast metal body that will likely withstand the rigours of whatever life throws at it – either in the studio or on the road. The sturdy double-mesh grille surrounding and protecting the capsule is simultaneously designed for high RF rejection, plosive control, and acoustic

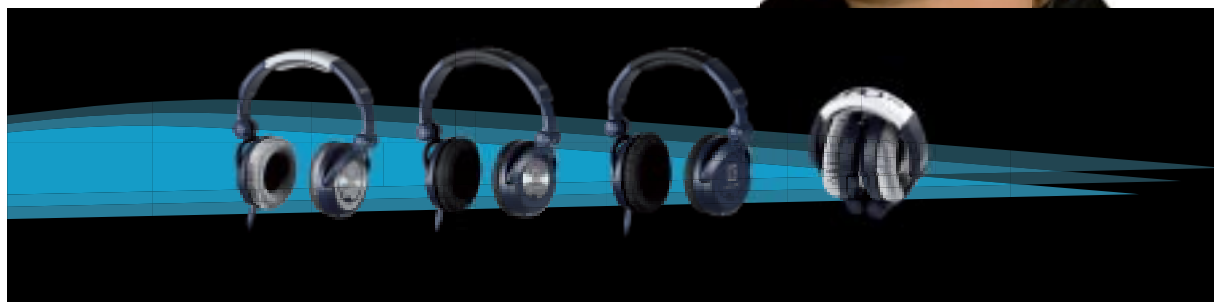
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transparency. While the mic isn't the most 'sensitive' large diaphragm on the market when confronted with plosives from a vocalist, a pop shield is still mandatory on any recording session. The capsule itself also has an integrated suspension system to help reduce transmitted mechanical noise from the stand that supports it. The low frequency roll-off switch located on the right side of the mic provides a relatively gentle 6dB per-octave slope at 160Hz, while the pad switch on the left allows for 20dB signal attenuation in high-SPL sound fields.

To combat the confusion often experienced by first-time users of C-414s, the 'front' of the C214 is signposted with the new AKG logo and silver grille, with the rear grille coloured black; you'd have to flip it around to see the logo for that all-important video shot – à la Lenny Kravitz and his Neumann! The XLR connector is gold plated and the C214 comes complete with a foam windsock, a plastic spider-type shock mount, a camera style metal carry case, and an instruction booklet.

#### C THE LIGHT

In a DC polarised capsule design, a voltage is applied across the diaphragm and a rear plate. This voltage is supplied either by phantom or battery power, and the capacitance between the plates is varied due to the air pressure on the diaphragm changing the distance between the diaphragm and the rear plate. With a bit of electronic wizardry this variation can be converted into a useful signal.

An electret capsule meanwhile has a permanently charged rear plate and doesn't require any external voltage applied to it. The varying air pressure still alters the capacitance between the diaphragm and the charged plate and again, with the addition of some circuitry, we have a useful audio signal. The distinction is that the power applied to electret type microphones (via phantom or a battery) is used only for the internal preamp electronics.

#### At The Top End

During my time working with the C214, I tested it on a wide variety of instruments and voices while recording an upcoming Australian TV series. The main songs and underscore of the show had light orchestral arrangements that included voice, strings, double bass, accordion, brass, woodwind, and a nylon-stringed guitar. I tried the C214 on most of these instruments and came to the conclusion that the character of the microphone definitely sat at the 'bright' end of the spectrum, and best suited instruments and voices that didn't have lots of high frequency energy in their sound. Unfortunately, I couldn't test a stereo pair of 214s on piano recordings or drum overheads – a very common application for C-414s – since I only had one mic, but my suspicion is that they'd work pretty well in pairs. 'Matched' pairs of C214s are due for release later in the year, according to AKG.

#### Hitting A High C

The C214 offers lots of detail in the top end and even a sideways glance at the on-axis frequency response curve shows why. There's a pronounced 5dB hump at around 12kHz, which would account for the slight harshness I heard when trying the C214 on a violin and a soprano voice. This top end boost is apparently one of the major differences between the current AKG capsule designs and

the famed CK12 'brass ring' capsule. However, the mic did sound good on low-end instruments like tuba, viola, bass clarinet, and a baritone voice, coping well with the dynamic range of the wind instruments and in particular the oft heard, aforementioned tuba. It showed once again that a mic is only as good as its marriage with the sound source – it's really up to the user to choose which mic best suits which application. The C214's ability to handle high SPL (156dB @ 0.5% THD with the pad switched in) would also make it very suitable for recording loud electric guitars, drum overheads, and (the often mentioned, but never tested) jet engines.

#### At The C Side

For those of you wanting an AKG large diaphragm condenser, but without the price tag associated with a new C-414 variant, the C214 is certainly worthy. It straddles the middle ground in the AKG range between the C3000B and the C-414 B-XLII, and I would suggest that with its rugged construction, ability to handle high SPL, and a wide phantom power operating

range, that it would make either a good recording mic, a reliable in-house stage mic, or a trusty hire workhorse. **AKG**

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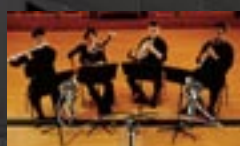
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Delightfully tangy or explosively corrosive? RICHARD WENTK examines Sony's little looper with DAW aspirations.

Before Acid, loop assembly was slow and torturous, and required manual time stretch, pitch shift, and tempo matching for every loop. Acid revolutionised the concept by making it as easy to pin loops to a grid irrespective of their source tempo, with optional pitch shifting. Since then, looper tools with similar features have appeared in Garageband for example, and some professional DAWs also include quick beat matching and pitch shift. As the competition has evolved, Acid has moved on. This update underlines that Acid isn't just a loop arranger – it offers a powerful mix of intuitive loop assembly tools with extra DAW-like features for recording and arrangement. The feature set is unexpectedly deep. Most powerful is the automation – this works at a full-cream DAW level, offering individual control of any basic track or plug-in parameter, controlled live by a control surface or painted in with a mouse. But there are other extras that push Acid beyond the basic level offered by Garageband and Steinberg's Sequel, and turn it into a productive audio environment.

to its settings, which is simpler and more intuitive than the Cubase/Nuendo mixer and gives the ProTools mixer a good run for its money.

Acid's old recording limitations have been broken. There's support for multiple input busses, and surround mixing is also possible. You can add your own labels to ASIO hardware, and hidden out of sight are closer links to various control surfaces. Even the best console-sized interfaces struggle with mapping track and FX parameters to a set of hardware controls in a way that's intuitive and obvious. Acid's flexible approach means you can control how this happens to suit your own hardware. It's not a fully solved problem – no one in the industry has truly solved it yet – but it's an improvement on earlier versions and makes Acid easier to work with.

The time stretch technology has been given a useful but minor update. Time stretch in Acid has always been less than optimal, making mixes audibly crunchy and low def. The interestingly titled *élastique Pro* for beatmapped clips

## SONY ACID PRO 7.0

### Professional DAW



*Garritan's Aria is an orchestra in a box – albeit a very small orchestra, in a very small box.*



*iZotope's effects bundle includes a selection of basic but useful plug-ins.*

### Avoiding Temptation

So what's new in this update? Acid is reaching the point where it's tempting to start nailing on features for the sake of it, but Sony has mostly managed to avoid the temptation here. There isn't a vast list of changes, but almost all of the new additions nudge Acid further in the direction of mini-DAW credibility. The most obvious change is a new console-style view for the mixer. This now looks and works as it always should have done. Faders and meters are now visible for every track by default. There are also various sub-views that show inputs, soft synths, and assorted busses, and support for MIDI mixing, with much improved metering both in the track list and in the mini-console area.

The mixer view is very customisable, and while there's a certain amount of tweekery for the sake of it – you can set the meter range, the screen width of each

is supposed to improve this. In practice the difference was modest. I loaded Acid Pro 6 for a comparison, and while it was easy enough to hear a smoother sound in Acid 7, I felt the timestretch quality still lagged behind that offered by more professional DAWs. You can set beat points and slices, and there are four algorithms to choose from: Pro, Efficient, and two versions of Soloist for monophonic material. There is also the 'classic' timestretch method, again with optimised modes, plus straight loop stretching options.

Acid Pro 7 can deal with up to 24-bit, 192kHz audio, and internal processing is done at 32-bit floating point.

### In The Box

Also in the box is Sony's selection of 3,000 taster loops from its library series, which you can buy as add-ons. There are also 1,000 MIDI file clips, most of which are designed to loop, but which aren't linked in any obvious way to the sound files or softsynths they're designed to work with. More usefully there's a sizable collection of plug-ins and extras. A very basic GM softsynth is still available, and sounds as good as you'd expect it to. But iZotope's Acid Pro Effects are more useful, with a modest but useful mix of traditional flangers, phasers, delays, and dynamics. There's also a Guitar Combo bundle that includes three amp sims, also useful for adding overcooked crunchy distortion effects. For more conventional sampling there's a basic version of Garritan Aria, which includes orchestral and General Midi samples, and can be expanded almost indefinitely with downloads from the Garritan range. And finally you can get your drummer on with a \$50 collection of drum samples and kits, which includes MIDI grooves and is more fun than it sounds.

### Building An Extension

Perhaps more useful for sound design is extended file format support. WAV and AIF remain standards, but it's now possible to import and export/output FLAC, AAC, AC-3, and MPEG-2 files directly without conversion. This might not look like a spectacular change, but FLAC is increasingly being used online for lossless file

### THE REVIEWER

RICHARD WENTK is the owner of Skydancer Media, a digital production company providing sound, image, design and consultancy services to various clients in London and the West Country.

track, or you can make the faders disappear altogether – some of the changes, such as the quick mode for adding insert FX, make Acid much more responsive to work with. Acid's FX chains can be any length, and you can hide or show as many plug-ins as you want to. Effects are still per-track rather than per-clip, which can be wasteful of screen space, but makes automation much easier to understand. Clicking on each item in an effects stack takes you directly

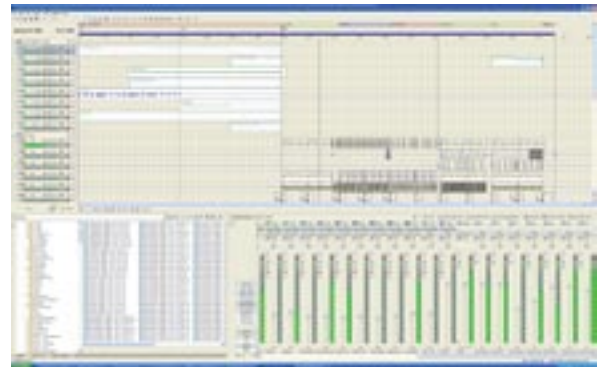
copying – compression ratios are typically 50-70% with no quality loss – and the other formats occasionally appear in broadcast. There's no support for professional file or EDL formats like AES31, OpenTL, or OMF, but there is a single video import window that you can use for cueing and syncing.

### Keeping The Window Closed

It's worth pointing out that Acid is very much a Windows product. There is no Mac version, and after seven updates, it's unlikely that there will ever be a Mac version. It's also worth knowing that Acid still has a rather literal minded approach to plug-in management. The new plug-in manager is an improvement, but some VSTs still seem to cause problems and occasionally crashes. Start up times aren't speedy because all plug-ins are rescanned – quickly – on start-up, every time. Considering that a budget application like Xlutop's Chainer (a limited but useful VST stacker) doesn't do this, there's still room for improvement here. The initial start-up after installation takes much, much longer – you'll have time for tea and possibly lunch – because all plug-ins are scanned in detail and added to an internal list. If you only have a few plug-ins this won't be a problem, but install Waves, a TC Powercore or a Universal Audio collection and you'll be in for an extended wait. Even so, in spite of its limitations, Acid Pro 7 has a lot to offer. It's not quite a true DAW replacement, but it is a



Amp simulation built in.



On a large monitor Acid can sprawl out for speed, showing loops, tracks, mix settings, and the arrangement at the same time.

quick working tool for working up demos and sketches which can then be duplicated in a more professional mixing environment. Sound designers may also be interested – putting together a collage from unstretched samples and adding FX to each line feels easier and quicker than in any other environment. It would be excellent if there were an industry standard for loopers, so that projects sketched in one environment could be transferred easily to another. Unfortunately there isn't, so if you want to reconstruct an Acid mix in another DAW for better sound quality you'll have to do it by hand. But when time stretching isn't used the sound quality remains very good, and the automation is powerful and comprehensive.

### High-Level Ph-un

More than anything, Acid is unadulterated fun as a creative sketchbook – like Garageband on steroids, with none of the limitations. It's easy to

find yourself putting together ideas you wouldn't have had otherwise – and the price is hard to argue with too. If you're looking to move out of Apple's garage, or are in need of a quick sketch pad for loop assembly with extra power in for creative sound design, Acid is well worth some serious attention. **AW**

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# Top Ten Winter Deals

*Audio Media rounds up some exclusive seasonal reader offers!*

If, like so many these days, your day starts off with a bowl of credit crunch and freshly squeezed economy, then you'll appreciate this cracking little collection of exclusive offers, news, bundles, and discounts from some of the top names in our industry. So if you missed these last issue, the good news is there is still a little time left to take advantage of them.

The New Year sales aren't just restricted to your local shopping mall, so we rounded up these great gloom-busting deals for the

canny pro audio and broadcast buyer who likes to stay ahead of the pack. So to help put the Happy in your New Year, these generous leading suppliers have offered to give you some extra bang for your buck – and just for AM readers. Unless otherwise stated, these promotions are for the UK only, subject to availability and valid until Jan 31st - so hurry! (Be sure to quote 'Audio Media Winter Deals' when confirming your purchase).

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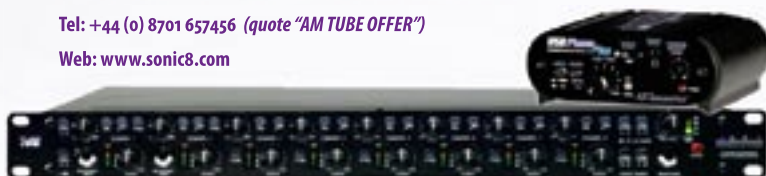
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John Broomhall talks with DICE's Magnus Walterstad about cheating gravity from the rooftops, walking on glass, and death falls in *Mirror's Edge*, a game that brings a whole new meaning to realistic sound effects.

If you suffer from vertigo, prepare to conquer your fears... *Mirror's Edge* gameplay is all about cheating gravity with a Parkour-inspired, non-stop, high-flying, death-defying athleticism. Haring around roof-tops, scaling walls, body flinging from ledge to high-wire, the player experiences a profoundly effective sense of movement and perspective as they take the role of Faith, a 'runner'. Her underground, outlawed courier role is the only communication vehicle of privacy within an oppressive government-controlled future cityscape.

For Audio Director Magnus Walterstad, the primary challenge was to create audio playback logic seamlessly delivering Foley and breathing sound FX content interactively, never 'breaking the spell', no matter how outlandish the stunts a player might attempt in a game-world of open-ended acrobatic opportunities.

word being perception. Most of the environmental sound sources in the game would be set up by using the game engine editor, allowing Walterstad to define 'point emitters' in 3D geometry at specific x, y, and z positions, and assign them sounds to be played back under certain logical conditions e.g., the proximity of the player, time of day, and so on. But it was clear the resulting relatively literal live mix created by the game engine would have to be significantly overridden at run-time to realise Walterstad's manifesto.

### Still Movement

"I figured that if you stand still in the game you should have a sense of this mass of city sound constantly changing and developing (without of course ever repeating – a challenge in itself). If you were to start walking, I didn't want you to be conscious of your movement at all audio-wise. But as you would start running, then I wanted you to notice harder footsteps, the release of the foot, the knees meeting more – and of course, breathing. As you gained



# Mirror's Edge

momentum, the cityscape sound would slowly change. To enhance the sense of speed there would be less general ambience, more of your own Foley, and now swishes as you rush by specific 3D-positioned audio 'objects' – kind of like when you run or cycle hard and you get into a kind of sound bubble – it's you and your sounds and breathing in the zone – the air whooshing by and even the sound of your own clothes flapping. The other dimension to *Mirror's Edge* audio is that same bubble being burst by enemy gunfire whereupon I wanted the overall sound to become stressful and unpleasant."

For proof of concept, Walterstad prototyped his ideas by dubbing linear video of early stage game footage, the results of which are made public at <http://gamevideos.1up.com/video/id/21561>. He then liaised with the technical team re-designing some aspects of the existing sound 'engine': "I tend to think the same way I mix on a board – bussing channels together and so on – and that's similar to how the sound engine worked with definition of 'sound groups'. But we also added the concept of 'mix groups' too, so that by setting software flags in the game and triggering the use of different mix groups of sound according to overall game conditions, e.g., the player is running but not under threat - we could select the appropriate set of sounds to play at any given moment. We could even create the illusion of a ducking side-chain signal path where a player's hard landing from a big jump might appear to duck and filter the rest of the sound replay momentarily. All of this control was vital to deliver the dynamic and fully interactive sound mix I was after without having to

As with so many videogame productions, however, the final course of the game was only established after a significant period of experimentation, as Walterstad explains: "The project has shifted quite a bit for sure. Originally we had a male lead character and there were tons of weapons – obviously an initial focus for sound. However, it's morphed through various versions to become a first-person action adventure game with the focus definitely *not* on guns! In the end, we really didn't want the traditional floating camera view with gun dangling – we wanted full immersion and interaction with the environment. So it's all about agility – how you move from A to B using the most efficient route – without getting killed."

Once *Mirror's Edge* direction was determined some two yrs ago, Walterstad (whose previous foray into gaming was the renowned *Battlefield 1942*) crystallised his vision for the title's audio by literally writing down a 'manifesto' describing what the player would hear during four minutes of gameplay. His aim was to define how the game's sound should reflect what he believed would be Faith's sonic perception of the world – the operative



totally re-design the sound engine from the ground up – a time-consuming distraction and a potential project risk.”

Having set out the creative stall for the game's soundtrack and its technical delivery, Walterstad could concentrate on sourcing content and in particular the Foley that would make such a vitally important contribution to the player's experience of movement. Determined to leave his CD libraries gathering dust on the shelf, he set about booking Ulf Olausson, one of Sweden's premier Foley artists, for two mammoth sessions covering all the foot-steps – walk, jog, sprint, foot releases, jumps, landings – and the accompanying hand-based material – grabbing, sliding, straining, skin release. Walterstad: “We were able to carefully set up and record all the elements exactly according to how we planned to implement them. Back at base, the tracks were normalised and cut into the individual pieces required – some 16 to 20 per sound event. This means that, for instance, run cycles can be reconstructed ‘live’ by the game, but the replay can be altered and developed according to game events. From standing still to fully running, you transition through four different ‘feet’ soundbanks, plus there's run-time variation of volume, filter, and pitch in response to the player's velocity. We never know what the player will do, but we try and respond exactly with the right sounds on-the-fly.”

### States Of Breathlessness

Another key audio component the player hears continually through the game is Faith breathing. Again, different ‘states’ bring in different varieties of breath – calm, medium, and hard with 16-20 variations for each. Walterstad elaborates: “When standing still, you hardly notice the soft inhales and exhales though without them, it would feel weird. As you start moving slowly, the intervals between them get shorter but as you get up to jogging speed, we change from ‘long calm’ breaths to ‘short calm’ and the volume is raised so you get slightly louder, shorter breaths. As the jogging gets harder, Faith opens her mouth so you'll get long calm breathing through the mouth and finally for sprinting, we transition up to short intense breaths. If you stop quickly, the system slowly migrates down through the states. It always turns out differently each time through randomisation of choice of the variations available, and works very well. The main thing is that it's totally believable – so much so that people have reported becoming breathless when sat on their couch playing *Mirror's Edge* – subconsciously, their breathing starts to conform with Faith's!”

As well as intelligent use of real world recordings, in some instances Walterstad and his team used pure imagination, designing sounds for sheer dramatic effect to go beyond a movie treatment to convey the feeling of a physical effect on the player's in-game character: “The sound design for something like a bullet impact can make a huge difference to the gamer's experience – helping them not only to hear but to kind of feel the impact. Say you hear a distant gunshot and then the sound of a couple of bullets ripping into your flesh

– we experimented until we saw people actually flinch in fear because of the sound! Another example of a far-from-literal sound is that of falling to your death. We don't have a reference for this! Again we needed to conjure a feeling like your adrenaline kicking in – blood pumping distorted through your ears. It's a disgusting sound that gets nastier the longer you fall. Ultimately, it makes what you see appear more horrifying.”

Dynamically controlling the volumes of *Mirror's Edge* sonic elements has been vital to a successful soundtrack, and nowhere more so than in the mix of music against effects and dialogue. Walterstad: “My original thought was that the player should hear 20% of the music and feel 80% of it. We certainly didn't keep to those numbers though I was fairly pig-headed about it! We don't give the player music overload. The music level against FX changes according to what you're doing and where you are – we effectively have a set of rules for the M/E mix to be altered a-trun-time to avoid any possibility of cacophony.”

### The Score

For music composition and production, Walterstad commissioned Composer/Artist Magnus Birgersson (aka Solar Fields) to create 150 minutes of score over approximately five months. Walterstad: “When I became aware of his work, I instantly connected Magnus to the game. I sent him some early concept documents to review and react to musically. What he sent back was exactly what I'd imagined. Even the first tones of the DICE logo are totally recognisable and set the scene for the game. Each game level has its own unique score fully reflecting the environment – if you're in a dark area you will definitely feel the music pushing in on you compared to say, an open rooftop setting. Much of it's very ambient complementing the Foley – until you get in a chase or into combat – then percussion dominates. We also created a theme song for the game which is performed by Lisa Miskovsky, and the CD release features remixes by Paul Van Dyk, Armand Van Helden, and Junkie XL.”

It's an irony that whilst some games executives routinely call for so-called cinematic values to be applied to game music and sound, there remains in some quarters little appreciation of the craft and artistry of sound in all its story-telling power – and often, subtlety. However, there does now appear to be a firmly established appreciation of the importance, in a non-linear software environment, of the ability to set up sounds in a ‘literal’ way, to group sounds and then dynamically mix and manipulate them for dramatic effect applying real-time parameter changes for volume, panning, pitch, compression, EQ, and reverb treatments according to game events and conditions – all to enhance and define the player's increasingly sophisticated videogame audio experience.

With the latest mainstream console hardware providing more than enough horsepower to realise the audio designer's vision, the differentiating factor now becomes the quality of the vision. *Mirror's Edge* audio is both insightful and thoughtful in approach, but also excellent in execution, a credit to Walterstad and his team.



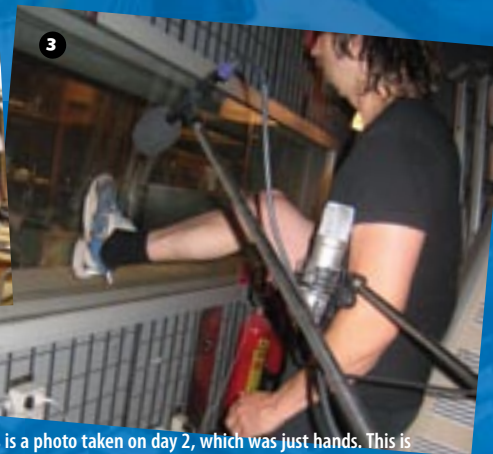
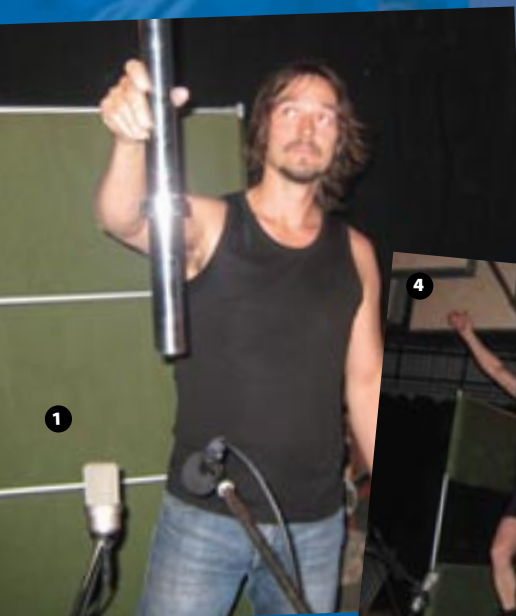
DICE's Audio Director, Magnus Walterstad

Featured Soundtrack – *Mirror's Edge*  
(PS3, XBOX360, PC)

Developer – DICE  
Publisher – Electronic Arts

The Audio Team –  
Head Of Audio David Möllerstedt  
Audio Director – Magnus Walterstad  
Sound Design – Ben Minto, Malin Arvidsson, Mari Saastamoinen  
Voice-over Producer – Tomas Danko  
Composer – Magnus Birgersson  
Audio Programmers – Kjell Reuterswärd, Johan Kotlinski  
Additional Music Credits – Theme song  
*Still Alive*, written and produced by  
Rami Yacoub and Arnthor Birgirsson,  
lyrics and performed by Lisa Miskovsky.

# FINAL CUT Mirror's Edge



## MIRROR'S EDGE FOLEY

- 1 Now hands that do dishes can... well almost. This is a photo taken on day 2, which was just hands. This is the magic pipe. The magic beautiful tonal pipe. Perfect. But it just wasn't giving enough – we need more! Wet hands? Didn't work. Soapy hands? Didn't work. Hands that have been wrapped in sticky tape and then peeled off to leave a residue? Didn't work. Solution? Sugar water – a secret blend of, erm, sugar and water, that gave just the right amount of tackiness to Ulf's hands to make the magic pipe sing to us. Ulf's poor hands were red raw at the end of the day, but the results were worth it.
- 2 For a couple of the specific surfaces (metal duct etc) the car body acted as an additional resonator adding more low end to the movement. Above the car you can see the gantry, which was one of the main reasons for using this studio. Mirror's Edge has a lot of scaffolding, gantry, and metal walkways, so this is one area we had to cover in great detail.
- 3 Sprinting on glass? Tricky. Wall-run on glass – even harder. The shoes Ulf is using here are from his personal collection and were selected after a shoe audition. I didn't think this glass setup would work, it just didn't look or feel right, but that's where working with a professional Foley artist really helps. They change their performance to make it work, and the resonance of the glass housing added a lot to the final sound. I'm sure the cleaners at SVT were a bit miffed that day after finding footprints on some many different sheets of glass around the studios.
- 4 Ulf in action – a heavy landing on metal walkway. The material used for 'heavy' was sometimes different than that used for 'light'. Why? With the 'lighter' moves we wanted to hear the details and complexity of the material, whilst the 'heavier' moves required a singular more distinct sound with a dominant tone and satisfying thud. Just EQ'ing in post wouldn't have delivered.
- 5 Chain link fence – new source material for climbovers – not having to just rely on the same source material that you find in the general SFX libraries and hear in almost every game and film. It is a tricky to work with, and you can see here three of us man-handling the beast.

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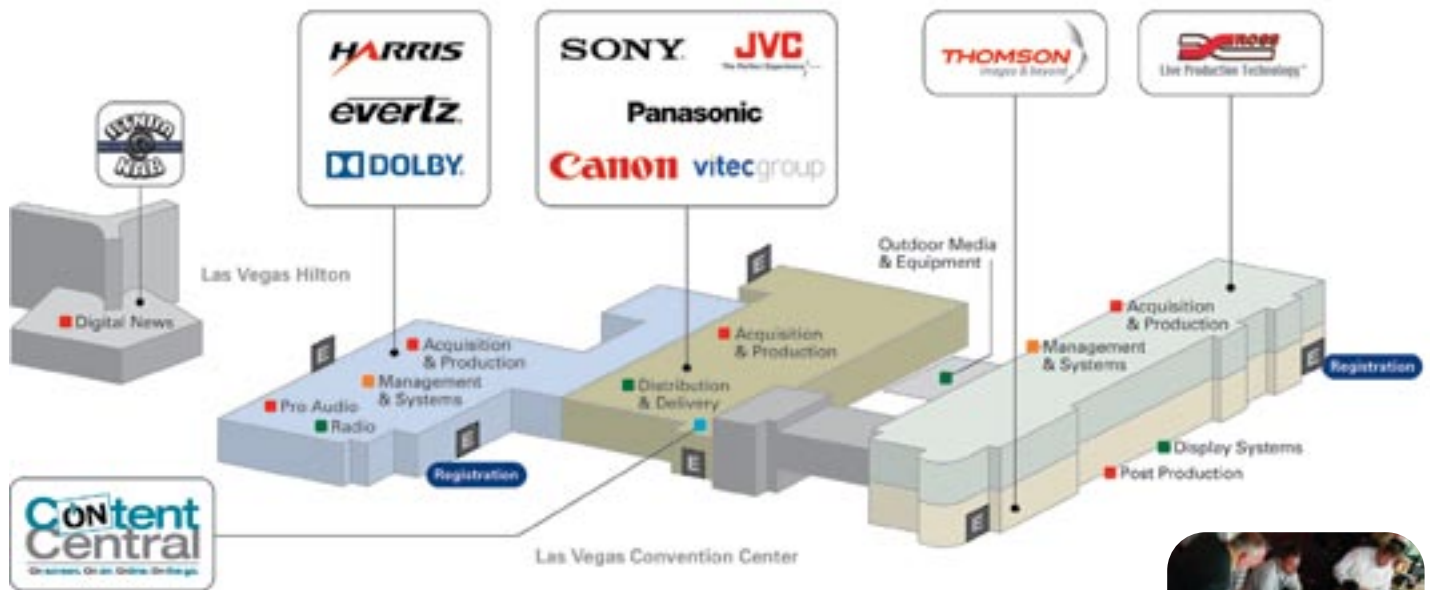
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**Opportunities In The Reality World** 31  
*Experienced reality production sound recordist SIMON BISHOP gives a trio of recent projects the audio exposure they deserve.*

**She's Got The Look** 36  
*Greg Kita is the audio guy behind this US reality-style modelling competition. He talks to STROTHER BULLINS about on-set solutions and the difficulties of remaining mobile.*

**The Sounds Of The X-Factor** 40  
*X-Factor is a broadcast and live show rolled into one, with the accompanying sonic challenges. JIM EVANS takes a peek backstage.*

## Opportunities In the Reality World

**SIMON BISHOP** faces some of the trickier realities of recording reality programmes.

One of the things I love about working as a freelancer in TV and film, is that opportunities come along that simply should not be missed. My background as a sound recordist is in documentary and factual, then a stint working on many pop promos and commercials, and then TV drama. One of those opportunities was for a show called *Bar Wars*, for Initial TV. In the spring of 2001 I got a call from a cameraman pal to ask if I could fly out the next day to Corfu, in order to scout out and recce for a reality show that was to be shot there. I got most of my brief on the journey out to Kavos, a notorious holiday destination that I had never heard of (the wonders of old age perhaps). Kavos is a small town in Corfu, with a long and pleasant beach, and a bit of a reputation. It is one of those resorts where British 'yoof' tend to go for a bit of a blokey holiday. The high street boasts somewhere near a hundred bars and clubs, and all manner of entertainment is catered for (don't ask me about the 'spit roast brothers').

The idea of the show was to have two teams of five people (it turned out to be boys vs. girls), each of which would be given a beach bar to run for the summer season. The twist was that the bar takings would be added up each week and the winning bar would have a day off and a fun day out, whilst the losing team would have to fire one member (by voting) and have a new member join them. My challenge was to work out how to cover the audio for all team members, at all times, wherever they were being filmed. There were to be four two-person crews (camera op plus recordist), plus four DV 'crews' of one, where the cameraperson would record their own sound. The idea was that two of the two-person crews would work from dawn as an early shift (one with each team), and the other two would start later in the day as a late(r) shift. The DV crews would work around the day crews, to cover incidents or stories as they arose, or late night stuff perhaps if the contestants went clubbing after working in their bars. It was pretty clear to me that the biggest challenge was that the team members might not all be in the same immediate area at all times. If, for instance, two members of a team were to go off shopping for supplies, whilst the remaining team members

*Rob Garcia, Recordist on Coach Trip.*



► were to stay at the bar – and if, say, one camera went with the shoppers, whilst another stayed at the bar – then we needed to cover the audio for any combination of a team's members, onto any of the cameras. Since we had a recordist plugged into each of the daytime cameras at all times, it seemed sensible to find a way that each recordist could mix any combination of team members to their camera at any time. In the end we built four identical bag kits, each containing an SQN mixer, a Sound Devices Mix Pre (wired into the mix buss IP of the SQN), three Sony twin channel radio mic

receivers, a boom mic, and a VHF transmitter to send audio to the Director. The Mix Pre wired into the mix buss IP of the SQN mixer effectively made a four-channel mixer into a six-channel one, and made the whole idea work. All five radio mics were available on their own faders at any time, plus a boom. An advantage of the Sony radio mic Rx's was that they were twin channel, which somewhat reduced the weight to be carried. The packs were still mightily heavy, and I am not ashamed to say that I had to move on to a previously booked job after one week of the (six week) shoot, glad to be

passing my pack onto another, rather younger, recordist, to finish off the marathon of a shoot.

### As Time Goes By

When I read the above, I immediately realise how different things might be if I were to be asked to spec a similar job today. There are now tools like the various recorder/mixers available that would have helped to make a smaller and neater pack. They could not only make a mix and send it to the camera, but also record iso tracks of all the sources as files. The obvious contenders would be an Aaton Cantar, a Zaxcom Deva 5.8 or Fusion, or a Sound Devices 788T with the CL1 fader pack. All of these machines can record iso tracks for hundreds of hours, whilst also offering a set of faders to simultaneously produce a mix. All of these machines record to either HDD or CF card, so files may need to be mirrored off after a shooting day, or can be recorded to CF card during the day, and copied off after work. That said, it should be remembered that one might produce quite a few Gbs of data in one shooting day, and it might become onerous to copy files after work. A way around this might be to set up a system with, say, a system of rotated CF cards that are copied off by post production or editorial whilst the crews are working or resting. Be aware that eight tracks of 16-bit, 48kHz audio recorded for five hours will make nearly 14Gb of data, which could be a long transfer after work! Change that to 24-bits, and eight hours worth, and it becomes a staggering 34Gb. So – recording directly to deliverable media, even if it gets recycled, is clearly a good thing.

Since the chaos that was Kavos (a dangerous place to holiday for sure) I have done a number of runaround jobs with various Zaxcom Deva



Simon Bishop on location.

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### A Meal Of A Job

About two years ago, I was asked by Trevor Hotz of Hotcam if I could work on a new series to be called *The Restaurant*, for the BBC. In the end, the shoot clashed with another job, but not before I managed to do all of the pre production meetings, and designed a workflow for both the studio shoot and a lot of the location coverage. The big challenge that the producers gave me was that they wanted to shoot for a day or two each week in a studio, with about 20 participants, where everyone would be miked up, but they were not quite sure which bits of conversation they would like to hear at which time (lots of cameras with zoom lenses!). We would have to radio mic everyone up, and try to do as much mixing as

possible whilst we shot, in order to try and give the post production people a chance. I had recently bought a SADiE LRX2 multi-track recorder, and Trevor had mentioned in passing, 'look at the Yamaha LS-something mixing desk'. I got straight online and found details of the Yamaha LS9-32 desk, which had recently been released. I realised immediately that this could be a really good way to sort out iso recording plus mixes for a lot of inputs. The two particularly useful features of the LS9-32 being that it would take a MADI IP/OP card, which would speak directly to the MADI input card on the LRX2, and that it had 32 faders, which you could build as a custom fader layout. *The Restaurant* was the first of many jobs that we have done since with the LRX2/LS9-32 combination.

► rigs (Deva 5, then 5.8, and now with a Fusion). I like the Deva and Fusion recorders, especially now that they have eight volume knobs, and a CF card slot built in. The Deva 5 had only four hardware knobs, plus four virtual onscreen faders, which was a little harder to work with. With eight analogue mic/line inputs, and its built-in mixing capabilities, it is quite simple to record pre fade iso tracks, plus a mix which can be sent to a wireless sender or video recorder. It is pretty much a one-box solution, other than radio mic receivers. The Aaton Cantar does a similar job, albeit with fewer mic IPs, though it does have six magnetic faders, and it is pretty much showerproof which could work well in certain climates. Sound Devices has recently introduced the 788T, a small 8-track machine, which when used with their bolt-on CL1 fader panel, can record eight iso tracks, plus up to four mixed tracks. The larger Sound Devices 7-Series machines can record to internal HDD, CF, and an EXT FW drive simultaneously, so there are possibilities to easily deliver large amounts of data on a HDD at the end of each day.



Simon Bishop with SADiE LRX2.

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Another recent job on which we used a similar setup was for a TV show called *Coach Trip*. This was another job for which I was brought in to set up, but was not to go out to shoot (I'm not sure that I could have taken the pace, to be honest). Rob Garcia was to be the recordist, but he was out shooting elsewhere when we were due to be building a rig to record about 24 tracks worth of isos and mixes – on the back of a 52-seat coach! *Coach Trip* is now in its third series, and Rob has worked on them all. There are 16 contestants (eight couples) and a tour guide, who travel around Europe on a bus, visiting places and doing 'stuff'. Every few days, a couple gets voted off the bus, and a new couple replaces them. A good part of the show is shot on the coach, whilst en route to the next place or activity. On previous series the sound has been recorded on all the soundtracks available on a rack of VTRs (there were four soundtracks per VTR, and five VTRs, offering 20 tracks to record on). This year, however, a number of the cameras went HDV, as did the recorders, and we only had two soundtracks available per VTR, meaning there wouldn't be enough audio tracks available to record onto. I did some measuring up when we recced the coach, and designed some shelves to be fitted in place of a pair of seats. This meant that we could build a rig including the LS9-32 and the LRX2, which could be operated by Rob whilst sitting in the 'comfort' of a regular coach seat. The install on the coach was uncomfortable to say the least, especially since the remote cameras, vision control, and the VTR farm were all being installed at the same time. Suffice to say that the kit survived a five-week tour, and many thousands of road miles, and worked very well. A great feature of the LRX system is that it will very easily write to two separate HDDs at once, so master and backup HDDs are written simultaneously. During the trip there was a bit of trouble with a 1TB HDD drive, which I realised after the job was mounted vertically, whereas the backup HDDs were mounted horizontally. Hmm – I might need to book a short coach ride!

My most recent adventure out into multi-track land was to do the audio for a *Celebrity Bridge* show for Sky Arts. The Yamaha and LRX combo were on parade yet again, doing sterling service. Our new gizmos of intrigue for this shoot were all RF-related. We had to rig to receive twelve radio mics over the entire ground floor of a hotel in St Albans, where we were shooting the show. It wasn't the greatest area ever covered with radio mics, but there were enough walls and other obstructions that I felt the radio mics might need a little help. I had a chat with the good fellows of Audio Ltd., who suggested that we use two pairs of aeriels via an aerial combiner, run through some frequency dividing units to feed different frequencies to different racks of receivers. Truth is that we set it all up, and it simply worked, which on the one hand was most excellent, but on the other meant we had no fun and games. My colleague Tom Barrow and I produced four different mixes (of four different rooms) simultaneously from the one mixing desk, along with two other recordists doing the runaround stuff.

What I love about designing and shooting for reality shows is that you never quite know what they're going to dream up next. Whatever it is, I am sure that it will present me with another of those unmissable 'opportunities' that I simply can't miss out on. **AM**



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## She's Got The Look

You could say that Sound Mixer Greg Kita is the sound of *The Look*.

Greg would agree, and STROTHER BULLINS reports.

*She's Got The Look* is a reality television show focused on women reaching 35 years or so – 'the peak of femininity', as many science-types (and many non-scientific) actively insist. And it looks as if they're right: judging by the lot of ladies seeking their second chance at a modelling career on this original series for the TV Land network, there's a lot lovely and modelesque about the 35-plus set, especially with those hosted on international television by proven supermodel Kim Alexis.

*The Look* is set to the bustle of New York City, where one most lovely woman amongst multiple beauties will win a substantial modelling contract. First, an America-wide search for lost models takes place; those rediscovered hop a plane for the Big Apple where live drama,

model-oriented action, and competition are recorded for the enjoyment of the viewing masses.

### On Reality TV Audio

Greg Kita – Sound Engineer/Mixer of RGEAR Audio for TV Land's *She's Got The Look* – may only be in his second season of manning the audio for this show, but he's well seasoned in the art of recording reality TV audio. "I've been doing reality television shows for about ten years," Kita begins. "The biggest challenges for us are the amount of RF channels we use, and that we work on multiple locations."

As you would gather by watching the average reality TV show, sets can be utterly unpredictable. This is no different for *She's Got The Look*. "We shoot all over the place: major metropolitan cities, remote islands,



all over this country and other countries," tells Kita. "For most shows, every day is shot in a different location. So, to understate, we're moving."

In most of the shows where Kita captures audio for *The Look*, there are nearly 20 cast members, and there are wireless mics 'on everyone', he insists. "We also shoot with eight camera packages, on average. For reality TV, a camera package is a camera, camera operator, and an ENG audio mixer with an over the shoulder bag. The ENG mixer is trying to follow what the lens is shooting. A lot of times, we have a cart system that is multi-tracking audio at the same time."

With Kita on the second season of the show, he now finds it a bit easier, if only out of habit. "We're shooting around New York City in multiple locations every day," he offers in a nonchalant tone. "Yeah, it's hard to move around in New York; we're in a gym in a high-rise building one day, cross-town at a sound stage the next day, and next, at a park. I just need to be mobile as much as I can while recording multi-track audio."

### Moving To Aviom

Because of his needs for gigs such as *She's Got The Look*, RGEAR Audio's recent acquisition of an Aviom Pro 16 system was most beneficial. "It was a huge benefit for this show in particular," he states assuredly. "It's the system with mic pres, output modules, and Yamaha cards. For most of our shows, the cast will move to a location and will live there. We're building out that house – running plant mics, an RF antenna system, and have cameras everywhere running into a central control room. These aren't sets; they're actual houses, mansions, lofts, and such. We used to run copper mults, big heavy cable, everywhere. But once we saw what Aviom was doing, it was clear that there was an easy, simple way to build out these houses."

Now, Aviom Pro 16 mic pres phantom-power all mics on *The Look* set. "We go into a house, find a central location to put our mic pre, run all our cables to our mics phantom-powered from the mic pre, then run a CAT6 cable from that mic pre to the control room, usually in a garage area," Kita explains. "The Aviom system makes it easy to hide the cable. Sometimes we'd even use existing CAT6 that was run in these houses; it just becomes an expendable cable rather than running big mults that are hard to hide and lay out. Then, when we're on location in different places every day, it provides the same benefit via an easy to hide and lay out system. We'll roll in with our RF rack and a cart in another room, maybe on another floor, and run one CAT6 cable between the RF

rack and the cart. With that, we're ready to go. The cable is expendable, and it can be any length up to 500 feet. We can immediately be two floors below where they're shooting – just throw a CAT6 out the window and we'll be ready to go in minutes."



### Rig Of A Reality Gig

For *She's Got The Look*, six cameras with six identical ENG-type audio mix bags are used. "They include receivers to dial in the cast members," explains Kita. "There are 20 cast members starting out, plus four judges and a host. We send two wireless channels to the camera, and they mix



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▶ down stereo to two tracks. They have five-channel mixers and can possibly pull up five cast members to mix that down, wireless to camera. They also have another wireless transmitter so producers can listen into what they are mixing. They would have a boom as well."

As the main man, Kita mans a multi-track cart with a Yamaha DM1000 and laptop computer. "I record everyone's iso tracks. I also have an RF rack; we roll it around, set up a couple of antennas, and run CAT6 to my cart. We use a lot of Sennheiser wireless systems – the SK-5212 transmitters and EM-3532 receivers. In our ENG bags, we use the EK-3241 receivers."

### **The Look Of A Typical Day**

What's a typical day in the life of *The Look* audio guru like? "Well, it begins in a loft on the Lower East Side," reveals Kita. "The crews show up, the cast gets miked, and then we shoot them with some reality at the loft – getting ready, and something might happen where they're told what they're going to do. Then they would travel to a location – say, a sound stage in midtown, for instance. They'd do a challenge, like a photo shoot. Then they would head to a second challenge, go back the loft, and end the day there. The next day, the same thing would happen, but we'd go to the elimination stage and shoot there. Then they would go back for interviews. That's how it runs."

"The biggest challenge of shooting in New York is the RF (radio frequency) issue," reveals Kita. "The city has so much going on, we have to search for frequencies that we can use. On the first day of shooting, we're dealing with 25 wireless lavaliers as well as 16 channels of wireless frequencies that go to the camera, plus seven frequencies for producers to listen. It's a challenge to find the available frequencies to use. When we're all around town, we just have to make it up as we go; every time we went to a new location, we found the available frequencies."

### **Reality TV Is Really Fun**

Kita doesn't specialise in reality television audio just because it's a lucrative business. He and his cohorts pursue the business because it's fun, inspiring, and a constant challenge.

"We don't just set up at one location," Kita offers with noted excitement. "You're always thinking about something new, and that's what I like about it. Other types of shoots include setting up at a location; once you're set up, you're good. We have challenges and scenarios every day, and our cast members are doing very different things every day. I like that it's a new thing every day: a new show can be shot anywhere in the world. Also, the camaraderie presents a lot more in the way of fun, too. You're dealing with a lot more than just audio. It becomes a bit of a management situation, where you're dealing with everyone and everyone else's packages, making it all work together. You become a team. With eight cameras shooting at once, we have people on the floor, equipment all around, and dealing with it all just comes with the experience of working on these types of shows. We've learned how to move with it. It's become second nature to us because it's what we do. It's our world!" **TM**



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# The Sounds Of The X-Factor

JIM EVANS speaks with Tim Summerhayes from Red TX, and Delta Media's Fred Jackson, during rehearsals for *The X-Factor* in Wembley.

Talent contests – in a wide variety of different types – are currently one of the most globally successful television formats. And *The X-Factor* is arguably the most successful, attracting mega viewing figures, making stars out of previously unknowns and providing a welcome boost to ailing record sales – and to the successful contestants' wallets. Indeed, *Hallelujah* by *The X-Factor* winner Alexandra Burke was this year's UK Christmas Number One single, with her major competition coming from the show's old girl Leona Lewis and her cover of Snow Patrol's *Run* at two. Another recent winner, Leona Lewis, has since gone on to achieve worldwide success.

*The X-Factor* show franchise originated in the United Kingdom, where it was devised by creator Simon Cowell as a replacement for the massively

successful *Pop Idol*. The competitions, now held in various countries, from the Czech Republic to Columbia, and from Iceland to Kazakhstan, are contested by aspiring pop singers drawn from public auditions.

Behind the slick TV show, produced at Fountain Studios in Wembley and seen by the millions of viewers, is a production team that includes some of the industry's leading TV sound operatives, using the latest technologies plus some 'old favourites'.

Fred Jackson, who cut his teeth on the live sound concert circuit, has been involved with TV sound for many big time productions – previously as Jackson Audio Limited (JAL) and now as Delta Media, a recently formed division of Delta Sound. His credits include *Britain's Got Talent*, *Pop Idol*, *BBC Jazz Awards* and many more. Working with

Sound Supervisor Sean Taylor, Jackson describes his role on *The X-Factor* as a co-ordinator – “finding all the sweet spots and getting the placements just right”.

“My job is to get things right as quickly as possible,” continues Jackson who is currently taking a full PA and back-up around the UK for the latest auditions

for the next series of *Britain's Got Talent*. “That's a completely different ballgame. On *The X-Factor* it's really a matter of understanding what the producers want, what they want to achieve. While sound doesn't take a back seat, speed and efficiency are essential.”

Equipment-wise, Jackson relies on a combination of new and old technologies. “The Yamaha PM5Ds are very reliable,” he says. “On the monitor front, for this last series of *The X-Factor* we debuted the new system from EM Acoustics. We utilised sixteen M-12 monitors on the show – fourteen built into the set and two as listen wedges – as well as four EMS-152 medium-Q 15” x 2” passive enclosures, meaning the entire on-stage system was from EM Acoustics.”

EM Acoustics' Mike Wheeler comments, “Fred became a customer of ours last year, after testing M-12 monitors and i-8 subwoofers on *The Friday Night Project*, one of his other regular shows. He added more monitors and EMS-152 enclosures to his system for this year's run of *Britain's Got Talent*, yet this is the first outing for a complete EM monitor system front to back. With Jackson Audio Ltd. now becoming Delta Media, and as such being part of Delta Sound, M-12's are now in the rental inventory of one of the UK's most respected audio rental companies.”

The M-12 – originally designed with Woking-based Sound by Design, has been a popular monitor within the industry for the past four



► years, with regular outings at the Royal Albert Hall as well as installed systems in Europe's largest inner-city shopping centre Westfield London, and Manhattan's The Jazz.

Jackson adds, "The ever-evolving relationship with EM has been a delight from start to finish. Their responsiveness to what was required for the original M-12J prompted me into seeking further development of products for job specific solutions with them. With regards to the M-12J, it has been out for a short while in our inventory on the *BBC Jazz Awards* this year as well as *The X-Factor*. The feedback from those on the listening end of the wedge has been extremely positive, and I look forward to this continuing."

Mobile live sound specialists, Red TX, mixed the broadcast for *The X-Factor LIVE* shows every week from their state-of-the-art mobile recording vehicle equipped with PMC MB2S-A stereo, and AML1 5.1 PMC loudspeaker monitoring, and Studer Vista 8 Digital mixing system.

"This is the third year I've been involved with *The X-Factor*, but the first with Red TX," says Tim Summerhayes. "Every year they have one show in the series which incorporates a big live band. On this occasion it numbers 36 musicians comprising 14 strings, 13 brass, and a substantial rhythm section. They're rehearsed by arranger Nigel Wright and it's quite a big deal at this end. They've redesigned the stage to incorporate the band.

"It's a three-day job for us. We got here on the first day at 8am in the morning, did all our technical tests and set the stage for the band – they leave the band entirely to us. During the sound checks and extensive rehearsals, we endeavour to iron out any problems. We organise the monitors for the artists – we're working with John Shaw again this year. He specifies and organises the monitoring for the band and does a great job. Between us we sub-mix the various elements through the in-house PA system and in-house monitoring for ►

#### DELTA MEDIA IS BORN

Audio design, rental, sales, and installation company, Delta Sound – best known for its work on high profile events such as the Tour de France, the Commonwealth Games, and Falklands 25th Anniversary celebrations, as well as host of corporate events – has joined forces with Fred Jackson, formerly known as JAL (Jackson Audio Limited).

Paul Keating, Managing Director of Delta, explains this strategic move. "We have worked with Fred for a number of years, collaborating on a variety of projects, and have developed a very good relationship with him," he says.

"Much of his work is in the television and broadcast industry, on shows such as *Britain's Got Talent* and *The X-Factor*, where he is well known and respected.

"At Delta, we are keen to expand our activity in this area. Fred's portfolio of clients dovetails perfectly with our own and his contacts both here and in Dubai, where Delta has recently opened an office, mean that having him on board as an associate will be a great asset."

A special division of Delta, [deltamedia.tv](http://deltamedia.tv), has been formed to provide a definite focus for this important market sector, as well as streamlining the operation in terms of equipment purchases, with Delta Sound acquiring the assets of JAL.

"I have taken JAL in its present form as far as I can within the segment of the industry," adds Jackson. "It now makes complete sense to continue the association with Delta on a more formal basis, exploring new concepts and ideas."



Fred Jackson, Engineer on The X-Factor.

## New PD Series Location Recorders





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But impressive features are only part of the script. Fostex's unrivalled pedigree in designing and manufacturing world class location recorders for over 16 years and our unique understanding of the broadcast, film, tv and audio acquisition environments means that these new recorders aren't just the best PD recorders ever, they're simply the best professional location recorders available today.

# RED TX HITS THE ROAD RUNNING

There have been a number of changes and developments in the mobile studio sector over the past year, with certain established players leaving the stage. A new name arrived on the scene in 2008 – Red TX. Staffed by experienced engineers, it has rapidly built a solid reputation.

“The beginning of the year was quiet for everyone, then it all happened,” says Tim Summerhayes of Red TX. The company was formed last year by Ian Dyckhoff ex-Fleetwood Mobiles, and Conrad Fletcher ex-Mobile One. “Our first job with the newly refurbished truck was a live recording of Def Leppard. After that, it was a remarkably busy summer. The festival season hit with a vengeance, including dates in Germany.

Def Leppard’s new album was launched amid a blaze of publicity when the band played a one-off gig at the Islington Carling Academy in London in front of an invited audience of music industry folk and fans. Red TX was also there, recording the concert for promotional broadcasts and for a 13-minute electronic press kit that Universal is issuing to the media to promote the band’s album and forthcoming tour. Excerpts from the concert were subsequently broadcast by various television companies including MTV and Sky News.

“More and more of the live to broadcast performances are going out in 5.1 surround,” says Summerhayes. “This was another reason for refurbishing this unit and making it absolutely rock solid 5.1 capable. We’ve now got a formula that works. We don’t scare anyone with it, we’ve covered all the pitfalls. The big one for us in the summer in London was Hard Rock Calling in Hyde Park. We also did the Nelson Mandela concert live on air which went out on 5.1 to America.”



Tim Summerhayes, Red TX.

▶ the regular show. We then send a stereo mix up to Robert Edwards in the master control room, where he adds the performance element and sends it out to air.

“Over the two days rehearsing all the artists, we store snapshots of the performances and update them as we go. So come show time, we run through the snapshots stored on the console, and if everyone does the same as they did in rehearsal, it all runs smooth as silk. It goes out live on air and goes out to around 17 million, and now has to be one of the most popular shows on TV.

“There is pressure involved but it’s not daunting. There are safety elements in place. There are a number of worst-case scenarios. If a microphone fails, we hope it fails quietly. We try to cover all eventualities but the thing that fails is usually something you haven’t actually thought of. Touch wood we’ve encountered no major problems. We’ve got an experienced crew and everyone has his own specific area to look after. We all work well as a team. Matt Wood is the patchmaster general, and the cross patching on this job is absolutely phenomenal.

“When you’re in a recording studio, you are creating a performance, while what we do is capture a performance. It requires a totally different mindset. We are undertaking an increasing number of live on-air broadcasts which is pressure – if you screw up everyone knows about it. But I like the excitement.”



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The SSR1 is a simple to use high quality solid state recorder. With Balanced In/Out and Digital In/Out this makes it ideal for studio, live & mobile installations. Both the SSR1 & SSCDR1 Offer all of the same editing & Auto Cue/Ready features of our Minidisk machines plus higher quality (broadcast standard) 24 bit 48k recording. The SSR1 is a space saving 1U with both parallel and RS232 connections for remote control and a Keyboard connection for titling. This makes it an ideal unit for all your recording and playback needs.



The SSCDR1 is the only available 1U standalone professional CD recorder by TASCAM. As well as being space saving the unit gives the reliability of solid state and the convenience of Compact Disc. The SSCDR1 allows you to record to Compact flash then transfer to CD or vice versa. Any CD can be ripped onto the compact flash card in MP3 or Wav format. This makes the SSCDR1 great for archiving CD's into Wav or MP3 format. Standard Mp3's can be transferred onto a compact flash card then setup as a playlist for play out purposes or burning onto CD.



The HDR1 offers direct to compact flash or USB recording. Both line level and Phantom powered Microphones can be recorded without the need for external pre amps. The HDR1 has a ducking function to allow for announcements to be made while music is being played back by the unit. The Ethernet port allows remote operation of all functions as well as being able to retrieve any files or send files to the unit using standard File Transfer Protocol.

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The RC SS20 is the perfect addition to the SSR1, SSCDR1 & HDR1. On the SS models this remote enables the use of the flash start feature which allows for up to 20 tracks to be triggered instantly. This makes the remote ideal for jingle play out or instant play of any track in a playlist. When connected to a HDR1 up to 16 tracks can be triggered all from a wired remote that can be up to 10 meters away!

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## SADiE LRX2

### Multi-Channel Location Recording Interface

**SIMON BISHOP** finds the reasons for buying a new SADiE are equally valid now as they were almost 20 years ago.

Almost twenty years ago, I saw a SADiE for the first time at (I think it was) the APRS show in London. I wanted one there and then – it was one of the first pieces of audio gear where on sight I had an overwhelming feeling of, 'I MUST have one of those'. It took me a while to convince myself that my trumped up reasons for buying one were valid, but the urge grew stronger and more irresistible so in the end, after a busy patch of work, I bought one. Now, why on earth could a location sound recordist, working mainly on documentaries, have need of a studio-based DAW system? At that time I was working regularly doing playback for numerous pop promos, many of which required off speed playback tapes or DATs made, and I had just the machine with which to do it. This was, of course, possibly the most extravagant method of making playback tapes, but of course once I had the SADiE (Classic) system set up in my spare bedroom, I found more and more uses for it, and gradually I learned to edit, track lay, and mix within the SADiE software of the time. Truth is that I just loved the endless possibilities to tinker with audio that the SADiE provided, and to this day I usually have more than a couple of outstanding projects on the go that are nothing to do with work or making a living, but are everything to do with audio.

A few years back I was shown a very early prototype of a 'location version' of a SADiE. It was about the size of a paperback book, had no mic inputs, and hopefully would record (up to) six tracks. This prospect filled me with glee. At some point it was revealed that in fact it might work as an eight-track recorder, so it became the LR8, and then it became the LR10 project, and finally, LRX worked up to about 20 tracks, but was a bit short on DSP, so was rapidly replaced by the LRX2, which had loads more DSP, and could be configured to run up to 48 tracks. Though I had by then bought an LRX for myself, it was almost immediately upgraded to an LRX2. So – what's it all about? I shall try to explain:

The LRX2 base unit can only be described as compact.

It measures 43x33x7cm (depth/width/height, which is 17x13x2.5 inches) and weighs in at under 6kg with one slither card fitted (more of slithers later). The front half of the top panel is set up as a control surface, with faders and buttons, and the rear part of the top surface is flat, and conveniently sized to stand a laptop of your choice onto. This laptop will run the SADiE software, without which the LRX2 can't operate. Pluggery all occurs on the back panel, other than the headphone socket, which is on the very front vertical, with its volume knob. I should probably mention at this point the slither card business

that goes on around the back, as these are really the key to the flexibility of the LRX2. On the rear panel there are three SADiE slither card slots, which accept a variety of input or output cards. Generally each slither card is 16 channels worth of something (such as analogue ins, or AES I/O) so by fitting three cards the LRX2 can become a 48-track recorder. The MADI card breaks all of the rules and

copers with 56 ins and outs (64 in MADI-X mode), so, on its own or combined with other input cards, can create a 64-channel recorder. For location work this flexibility is most excellent, as an LRX2 can be configured to work with analogue or digital audio feeds that might be derived from all sorts of sources. Permanent rear connections are provided for power (XLR4M, 12v dc), LTC I/O (XLR3F and M), AES Ref in (XLR3F), Video Ref in (BNC), monitor L & R outputs (phono sockets), USB2, and a male 25-pin D connector for GPI. There is a 3.5mm jack socket on the right, into which can be plugged a microphone that can be used as a slate mic.

The slither cards (other than the MADI) use 25-pin D connectors for I/O. The analogue cards use DA88 pin outs, so old Tascam style cables are compatible with them. There are two D connectors on each slither card, so channels 1-8 are on one, and channels 9-16 on the other. The MADI card has a pair each of both BNC and optical connectors. Slither cards are fitted, removed,

#### THE REVIEWER

SIMON BISHOP is an experienced film/TV location recordist with a string of notable credits to his name.

or changed by removing and replacing a pair of retaining screws. Some of the cards need a little 'encouragement' to get them past the locking tabs of the adjacent XLR sockets, but it genuinely takes less than five minutes to change all three slither cards. Operationally this is a huge advantage, as it allows one base unit to perform in many different roles, with many different rigs and setups.

### Ready To Record

So, to rig an LRX ready to record, make sure that appropriate slither cards for your job are fitted, and plug in the looms (or BNCs/optical for MADI) and any sync and/or TC inputs. Plug in 12vDC to the LRX base unit, set up and connect (USB) a laptop on the top panel, and fire it up. If you take your time, it could be done in the time it would take to boil a kettle. It really is that simple and quick, and I have been known to get an LRX up and running from out of the flightcase in well under two minutes. There is a small fan in the LRX2 base unit, which can vary in speed. It is quiet (many laptops are louder), but it is there – be aware if setting up in the same room as your microphones.

The control surface is angled slightly to make things easy to get to. It can be broadly divided into left and right sides, where the left side deals with mostly fader and channel functions, and the right side covers transport and DAW functions. The fader side has eight motorised faders, with channel no. displays above each, plus backlit buttons for PFL and Record enable. There are two buttons adjacent to the faders, which switch the fader bank and fader functions, with LEDs to show what fader function is selected; pan, input level, or output level. The MTR software (Multi-track Recorder, more later) will look at the type and number of slither cards fitted and set the project details to match, thus adjusting the number of banks of faders. The motorised faders sense skin (or is it flesh?) so will resist movement when operated by a pencil, knitting needle, or other inanimate object. Unfortunately this also applies to human nails, which caused some intrigue on an early job. The right side has a jog wheel, surrounded by nine shortcut editing buttons, plus a bank of six function buttons (transport short cuts), a master level fader, a talkback button, and three nice big, transport control buttons for Play, Stop, and Record. These last three buttons have protection bars either side of them to prevent accidental operation, and are backlit, so you get a good bright, red light when you go into record.



### The Software Side

The LRX2 can run full SADiE 5 software, which might be a little daunting if you are a location recordist not overly experienced in building virtual mixers, etc, on a DAW. There is, however, a jewel in the LRX's crown that somewhat negates the need to learn a whole new system on a new platform. Enter the MTR software, which SADiE has

produced specifically for the LRX recorders. For multi-track recording the MTR software is quite brilliant, and is easy to get to grips with. If you open the MTR software with an LRX connected, the system checks the number of input channels fitted and starts a project to match. MTR presents the user with a kind of simplified version of the SADiE timeline screen, but with some great enhancements for multi-track work. Basically everything happens on one screen, including recording level and track info, project info, editing, and so on. MTR has a ready-made mixer that will mix down to two tracks as you are recording, so if you need a guide track made as you are recording the multi-tracks, this is entirely possible. The fader functions can be switched between pan position (left is down, right is up), input level (to record tracks), and output level (to the stereo mix stream which is at the top). There are some great short cuts as well. For example, if you want to pan all the faders to their middle position just press 'CTRL' and touch the appropriate faders.



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The right hand part of the screen is a timeline, and shows the track waveforms as they are being recorded. This has always been a great feature of SADiE, and gives great peace of mind. Suffice to say that I have never known a SADiE to draw a waveform whilst in record, but not to have recorded that audio. You can number and/or name streams, and those stream names can be built into the recorded filenames. There is an option to use the iXML metadata to construct filenames, so if you name a track Bass Guitar, and the shot no. is slate 73 take 2, the recorded filename will be 073\_002-Bass Guitar.

The Source Tracks Pane is a window that pops up when you push a button that looks like a blue filing cabinet. From this pane you can set up your metadata values, and also choose record and mirror drive destinations. Another neat trick that LRX can do is to record to two different drives simultaneously. This means that if you have an ongoing project, you can put smaller, deliverable files on one destination, whilst amassing a huge set of files on another much larger drive, as a backup or archive. I should point out that all SADiEs do all audio processing within the hardware, so in the case of the LRX2, the laptop is being used as a screen and keyboard, and to port data to wherever it is being recorded. This means that you can use a laptop of lesser spec, and yet still record many tracks and impressive quantities of data.

SADiE allows you to edit on screen whilst you are recording, so you can, for instance, cut the false start off a musical recording whilst you are still recording, which could be a great timesaver if you need to burn disks immediately after a concert finishes.

I haven't had time yet to mention that the audio on the LRX 2 sounds fab. The analogue mic/line input cards are about as neutral as I have heard, and are quiet, with loads of headroom. I have had some pretty unpredictable levels sent to me over the years, and yet I don't think I have ever managed to get the LRX IP cards into distortion, they just seem to take it.

### Conclusion

The SADiE LRX2 is small, light, and works from 12vDC. It is quick to rig, and the MTR software is easy and swift to learn. The LRX2 is reliable, adaptable, and sounds great. It is one of the most rock solid pieces of kit that I have had the pleasure to use, and also one of the most pleasurable. I can't help but think that Prism (the new owner of SADiE) will have its work cut out trying to improve on what it got with the LRX2. **AM**

### INFORMATION

④ From GB£21,340.00 (exc.VAT) (inc. flight case)

④ Sadie/Prism Media Products Ltd.,  
The Old School, High Street, Stretham,  
Cambs CB6 3LD, UK  
① +44 (0) 1353 648888  
② www.sadie.com  
③ sales@sadie.com

④ Prism Media Products Inc., 21 Pine Street,  
Rockaway, NJ 07866, USA  
① +1 973 983 9577  
③ sales@prismsound.com

► The screen is not far removed from a regular SADiE desktop, and will certainly feel familiar to experienced SADiE users. For those who are new to this kind of multi-track recording kit, the screen can be broadly divided into a top and bottom bar, and left and right sides. The top bar provides drop down menus for setup and housekeeping things, whereas the bottom bar has shortcuts to various operational parameters, plus a set of transport controls. The left hand side of the screen has all the individual track channel controls, like solo, mute, record enable input level, mic pad, phantom power, and for mic/line IP cards, an input level selector. The meters are user programmable, which is an excellent feature.

You can set the width of the meters, where they change colour from green to yellow to red, and what the dB values are at those colour change points. This means that you can, for instance, set the top 20dB to take up most of the meter's width, with the colour changing from yellow to red at, say -8dB. The metering is really informative, and you can save your favourite meter setups for reuse. If you are not using a channel you can click on its channel number to disable it. The background for that channel will then look slightly darker to indicate it is not in use. The clever bit now is that if you push the shortcut button for 'Record All', the SADiE will arm all the remaining tracks ignoring the disabled ones – another great shortcut.

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# GENELEC®



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indeed. MIKE AITON finds  
Source-Connect 3.1 is just audio  
alchemy to his ears.

In this festive season, I find myself beside my crackling fire and writing my audio wish list to Santa. I find myself asking to be rid of low bandwidth high latency, high cost ISDN, and the nightmare of the incompatibility of ISDN Codecs. I find myself dreaming of remote broadcast audio without the nightmare of latency delay testing when trying to do remote ADR, and of having near sample accuracy. I dream of being able to connect worldwide at the touch of a button to a linked Pro Tools session in a far away land... a new era in global broadcasting... and then, as the cat trips up over Grandma quietly overdosing on satsumas in the

Worthy of a mention is that Source-Connect will happily work (as it is an RTAS plug in) using Pro Tools LE or M power – even with remote transport sync. How cool is that?

The Source-Connect plug in, cleverly implementing Rewire technology, is smart enough to work out any latency and auto offset when you hit 'play'. The net effect is that when you hit 'play' using Remote-Transport-Sync, your remote talent's Pro Tools session moves too. Your remote talent does their ADR to their picture/guide audio perfectly in sync with their pictures, and when

## SOURCE ELEMENTS SOURCE-CONNECT 3.1

### Audio Contribution Tool



corner, I wake up. It's here, it's now, and it's even better than I ever dreamt of.

I haven't had so much fun in years. I have had sessions with full duplex stereo (i.e., sent and received simultaneous stereo) at 320Kb/sec each way (as good as a cable to most ears!) between Mikerophonics (my studio) in Twickenham, and Andy Morris at Buzzy's Recording in Los Angeles (premier LA voice over studio), merrily controlling each others transports and dancing up and down the timeline, whilst watching simultaneous local pictures, and best of all, it cost me nothing! Stick that up your ISDN pipe (bad pun) and smoke it!

By way of a recap, as Source-Connect has been previously reviewed in this publication in February 2007, this epoch-changing RTAS software plug in for Pro Tools, Audio Units, and VST was created by the team at Source Elements, founded by two audio engineers, John Binder and Robert Marshall.

Source-Connect was first released in March 2005 and allowed real time audio connection with broadcast audio quality using a high quality, very low latency AAC codec between two Pro Tools sessions over the Internet. As if this wasn't enough, in April 2005, version 2.1 was previewed at NAB with the following new features; Stereo, Multi Connect, higher bit rates of up to 320kbps; timecode support, and a very fair rent-to-own option (where once you have rented the plug in enough times up to the cost of the plug in, you then own it!).

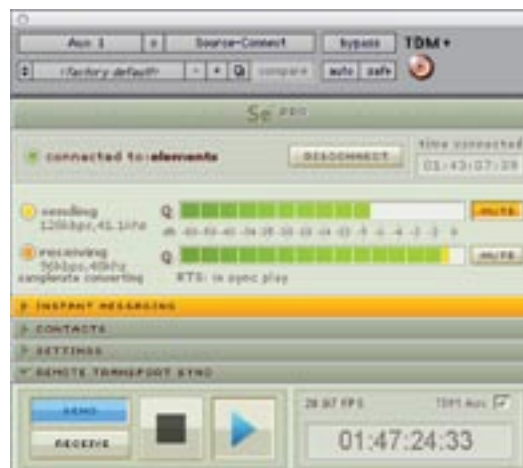
December 2005 saw the release of Source-Connect 2.2; which is where the fun really started. And, if you weren't paying attention in the back row up till now, you really need to be (WAKE UP!), as this version allowed the Remote Transport Sync feature to control the remote Pro Tools session. Remote synchronisation over the Internet? Black magic! And not a clumsy synchroniser or a timecode stream in sight. ADR or overdubs over the Internet are now very viable without all that tedious working out of offsets and the consequent sync roulette of, 'is it in sync? Is it the offset or the performance?'

the clean audio take arrives at your Pro Tools session, it will be perfectly in sync with your Pro Tools pictures/audio (accurate to six samples); as your plug-in has chased the remote end and auto-calculated the required offset. You have to see it to believe it – impressive stuff! Synchronisation takes place almost instantaneously – none of that four second LTC lock up, or gnarly wrestling with nine-pin synchronisers, or hoping one of your three ISDN codecs isn't going to burp or hiccup, or have a telecom tantrum and come out of lock.

### Two Roads, Same Goal

There are two modes of Remote Transport Sync, which are subtly different dependent on who is sending the audio and therefore who needs to offset to receive it:

1) Remote ADR mode is where you have talent in a remote location and your producer is sitting with you, and you wish to receive the audio from the talent. You will effectively control the remote session's transport. Having selected 'Send' in the RTS panel, and the remote studio having selected 'Receive' (i.e., you now control the transport), you send them a play command (using the RTS play button in the plug in transport section). The remote end goes into play, and you lock to their transport (with a cunningly worked out offset) so that you lock to the talent's outgoing audio – i.e., your ADR incoming audio is frame accurate. This is somewhat analogous to chase locking to an attached nine-pin machine (whose transport you control), which is something we all do day in and day out.





2) Session Review Mode is where you have the decision-making producer not physically present but remotely attached, and therefore you need to send him your audio (i.e., his session must offset to compensate for the time of arrival from leaving you to get to him). Again you activate 'Send' in the RTS panel, and the remote studio (with producer) selects 'Receive' – so you are in control of the transport. This time you use your Pro Tools space bar play cursor or console transport play, and the remote end offsets to compensate for the time of arrival difference. Voila – he hears your audio in perfect sync. How easy was that?

### Musical Magic

So, without much fuzz and buzz (as is common in these festive times), let's move onto Source Element's latest audio alchemy. Rebekah Wilson (Source Elements Technical Director) and her team have been mighty busy creating the magic for Source Elements. If this doesn't rock your audio world (if you can excuse my evangelising), then I will eat my proverbial party hat. Source-Connect 3.0 has introduced 'auto-restore' and 'auto-replace' via the Q-manager. These features are so revolutionary that I am adamant the team deserves an award for technical achievement (douze point, s'il vous plait). Let's backtrack to what Source-Connect (or ISDN for that matter) is actually doing, and you will see why. The audio signal is split into packets and sent over the Internet or network. These packets are sent sequentially to your connected partner. In an imperfect world, a network error might occur and a packet might not arrive in time, causing an audio tick or glitch in the received audio signal. Source-Connect has built-in error correction modes to resolve these dropped packet issues in real time. However, under certain circumstances, a packet may not be retrieved in time to prevent data loss before the signal is recorded. Before now, the only way to guarantee no data loss was to duplex record (record at both ends).

### Escape The Jailer

Now there are not just two get out of jail free cards, but three! Source Elements has cunningly implemented 'Auto-Restore', which resolves this problem by seamlessly working in the background (in non real time) and restoring the missing packets. Awesome! When I last tried it, my remote session (who sadly was not blessed in New Zealand with such robust bandwidth as me) watched a YouTube video at the same time as sending tone, to reduce the bandwidth of their connection and simulate a worse connection. This worked, and a few holes were both audible and visible in the waveform of my recording. By the time I had hit 'stop', and gone back in my timeline to replay the glitches with missing audio, there were none already! All I had to do was recalculate the waveform overviews (which were now wrongly showing audio holes whilst the audio had

been repaired – spooky!). This is truly impressive stuff. It works by peer-to-peer connection and your recorded audio file is scanned upon completion of recording. Any detected missing packets are requested from your remote connection (who stored them in the background), and your file is restored to its full glory.

Not content to sit on its laurels, the Source Elements team also developed 'Auto-Replace' which is perfect for connecting to countries with a lower bandwidth. In this instance (or if you so desire anyway) you can use Source-Connect to monitor the performance and record it. The beauty is that Auto-Replace will request the original PCM audio data from the remote end and will replace ALL the AAC audio in your timeline that you have recorded with the original PCM audio data from the remote end (before it was AAC encoded by their Source-Connect plug in). Unlike Auto-Restore, it is recommended to commence this process once the session has ended, as the PCM audio data is uncompressed and consequently large.

Newly in version 3.1, you can choose to have Auto-Replace happen peer-to-peer (p2p), or more slowly but more robustly via ftp. Woah! Just take a minute to take stock of what is happening here. After your session is ended, you no longer require your remote end to tidy up, delete the unused tracks, phone you up and hassle you as to what your ftp login details are on your server, zip the session, and then upload the session. You no longer then have to download the session, and then manually replace all the AAC audio with the full bandwidth PCM audio (tedious and not creative to say the least). You can now send your assistant off to make coffee (nice!), whilst you and your equipment earn more money with another session. Now that is music to my ears!

### A New Manager

So how does this all happen? Source-Connect has a new background application called the Q-Manager. This engine is a clever beast and will automatically in the background take care of your files. It records your audio input to the Source-Connect plug in as soon as you are connected to your remote session, just like a good old fashioned snoop tape. If you remember I said there are three get out of jail cards... so newly in version 3.1, if 'Replace' was checked during the session, and there were any issues with the final restore or replace process, the remote session can export the entire session as a WAV or AIF file – just like sending you the snoop tape. Now that is belt, braces, and wearing bullet proof audio pants if ever I knew it.

Source Elements has various flavours of the software for different users, from a basic to a pro version. There are Audio Units versions for Digital Performer, Logic, Garage Band et al, and a VST versions for Fairlight, Vegas, Nuendo,

#### WORKFLOW FOR REMOTE-TRANSPORT-SYNC SESSIONS

- Create a Pro Tools session (starting at 00:00:00:00 – although the actual number is not important, this seems to be a common standard amongst users).
- Create your source audio tracks (with original dialogue and fills, etc) to taste and route them to the main audio output.
- Import your video. Check that video resolutions that your remote connection can play and are prepared to download – and if necessary save the session as a new session within the same session folder, but with the required alternate video resolution.
- Digideliver or FTP your session folder with the correct video resolution and associated session files to the remote studio.
- Before connecting to the remote studio, open the same session and create (assuming you are working in mono) three mono aux inputs and a new audio track.
- Name two audio buses (which I label 'To Source-Connect' and 'From Source-Connect' in the i/o set up page.
- Name the first aux channel 'SC Plug' and substantiate a Source-Connect plug in from RTAS plug in 'Other' menu. Set the 'To Source-Connect' bus as the aux channel input, and 'From Source-Connect' bus as the aux channel output.
- Name the second aux channel as 'TB mic' and route your talkback mic as the aux channel input, and the 'To Source-Connect' bus as the aux channel output.
- Name the third aux channel as 'Rewire' and substantiate a source elements plug in from RTAS plug in 'instrument' menu. Give the aux channel a dummy input and a dummy output (mine are called 'whatever') which is a rewire requirement.
- The audio track should be named 'Record' and the track input should be the 'From Source-Connect' bus, and the track output should be to your monitoring. The track should be placed in punch in record and enabled (to input monitor in stop – with Pro Tools HD). That wasn't hard was it?

and Cubase campers. There is also a stand-alone version, Source Elements Desktop: something for everyone.

The company has developed some related products to help you with your new online presence. Source-Live is a plug-in for Pro Tools and VST that can send your mix directly to your clients. Give them your Source-Live link, and they can listen to your stream in a Quick Time stream in real-time. Ideal for reviewing music and for shortform productions.

### Big Desk Ideas

Source-Talkback is a ridiculously nifty little plug-in for Pro Tools 7 users of Source-Connect that gives big desk functionality for talkback without the big desk bit. It cuts your talkback microphone feed to the remote end until you key it (either in latching or unlatching mode), and when you do, it dims your monitoring and therefore prevents feedback and delays through the monitoring speakers. A must have in this age of virtual desks. 

#### INFORMATION

- ① Source-Connect Standard US\$395.00/GB£265.36 (exc.VAT), Source-Connect Pro US\$1,495.00/GB£1,004.34 (exc.VAT)

- ② Source Elements LLC, 515 N. State St., 25th Floor, Chicago, Illinois 60610, USA
- ③ +1 312 706 555
- ④ [www.sourceelements.com](http://www.sourceelements.com)
- ⑤ [info@source-mail.com](mailto:info@source-mail.com)

# Ask Now, And Don't Regret Later

## RECORDERS REVIEWED

**ALISTAIR MCGHEE**  
recommends the 10  
questions you need to  
ask before buying a  
portable recorder.

**Q**uestion one. Do I need XLR sockets and phantom power? This question pretty neatly divides all portable recorders, and is a very good rule of thumb as to which part of the market a recorder is aimed at. Fitting XLRs and batteries man enough to deliver phantom power puts some size restrictions on a recorder from the go. That means if you want ultra pocketability, then you're going to need to go for the 'all in one' approach, or at the very least opt for domestic connectors. Which leads us neatly to the next question.

### Fuzzy-Edged Science

Question two. Do you want built in microphones? Like the classification of animal species, the ordering of recorders is not an exact science, there will always be fuzzy edges. So the Fostex FR2LE has XLRs and built in mics, as do some Edirols. But lets leave these hybrids aside for the moment. Do you want mics you don't intend to use?

At the top end of the hand held market, we have products from Sony and Nagra. The Sony seems to have set the pace on form factor, with its built in XY mics, and I hear good things about it. But my experience is with the Nagra ARES series, and having bought one (a RCX 220), I have never regretted it. Super build, the easiest machine to use in the world, and a peerless product for point and talk.

Further down market, you probably want to ask a subsidiary question: do you need stereo? If not then the question becomes, do you need a mic with a recorder attached? If so, then the HNB Flashmic is probably leading the charge. Built on a Sennheiser chassis, the Flashmic is robust, well designed, and mostly idiot proof. Almost best of

all, you can stick a windshield on them. A proper windshield that will allow you to record outside without rolling the bass off below 1k. The BBC uses them in droves, and they are a long term investment. However – two of the four current models don't have a line input, and you can't read the meter while talking into it.

### A Dark Horse In The Stable

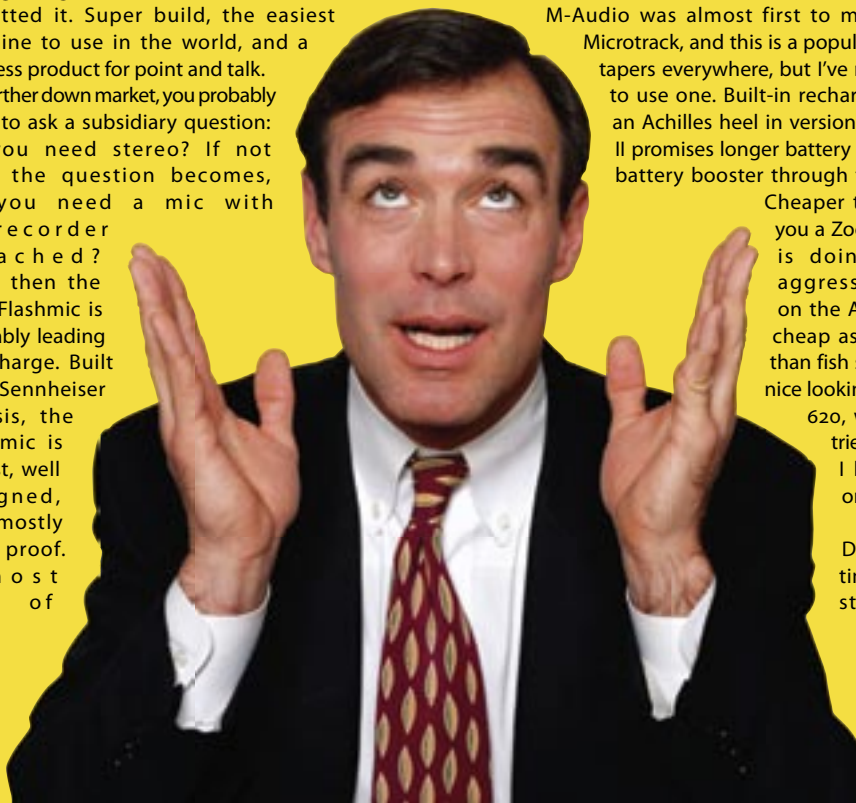
Back at the stereo stable I've had lots of fun with the Edirol RO9. It takes SD cards, has surprisingly good mics, and fits in your shirt pocket. I really didn't like the battery door on the mark 1, and I'm really pleased to say they have sorted it out for the new model. You can fit a Rycote Softie over one, but windshields for these beasts are always going to be tricky. You do get them supplied with the dark horse from Olympus, the LS10. Coming from a company that has been making top quality dictaphones for years, the LS 10 is a heavy hitter. Superior build, and I mean classy for the price, a nice big screen and a nice interpretation of what must be the standard chipset and 2Gb built in and removable storage: this is the machine with everything.

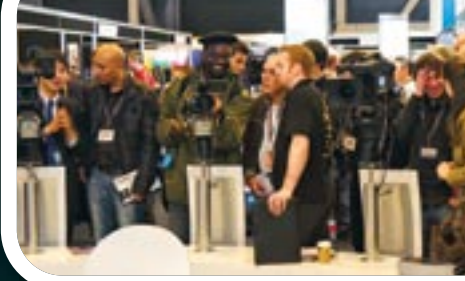
### An Achilles Heel

M-Audio was almost first to market with the Microtrack, and this is a popular machine with tapers everywhere, but I've never had cause to use one. Built-in rechargeables proved an Achilles heel in version 1, but the mark II promises longer battery life and external battery booster through the USB socket.

Cheaper than chips gets you a Zoom, while Nagra is doing some very aggressive packages on the ARES-ML. Not as cheap as chips, but less than fish supper. There's a nice looking Marantz PMD 620, which I haven't tried, and a Yamaha I have seen, but only from afar.

Next question. Do you want time code, and is stereo enough?





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► If not (to the time code part) Marantz has some tidy recorders, and has been in this market forever. I've got one of the early 6 series machines, and I don't really love it. But its new 671 promises long battery life, simple edl-based editing, and even read after write monitoring. Tempting stuff. Alongside its SD and Compact Flash recorders, Marantz is the only one offering CD burning on the hoof – though it's now via the medium of hard disk. The 420 has built-in edit functions before you burn the CD, which is exactly what I'm looking for, so bring it on.

### Yes, Yes, And Yes

If you can remember the question – timecode but only two tracks. Yes to both brings us to Fostex FR2, Tascam, and Sound Devices territory. I bought a load of Fostexs, and like Frank I have some regrets. The machine is great, light, well specced, and built to take a knock. The time code board is an add-on, unlike the Tascam. My main gripe is the battery life, which is shorter than your granny on Halo 3, and although the machine is not heavy it is on the bulky side. But they do last, and they do the business. I haven't tried the Tascam HD-P2, but it has garnered some good press and should be on your list if you're serious about a recorder in this bit of the market.

### Killing Cash For Flash

Sound Devices has had plenty of my cash in recorders (well, not really mine, but you know what I mean) and quite simply, make some killer machines. You can have with or without timecode, and with or without dual recording to hard disk and Compact Flash. The build quality is wicked, and these machines are works of electronic genius. They use standard Sony-style camcorder batteries, and battery life is generous. You can replace the hard disk for a bigger one with some hand tools and the helpful manual. The file management options need thinking about, but when you've done that, they really are ace. If you have the latest firmware you can record to external FireWire drives. The downsides aren't many, but nothing is perfect.

The menu system is one enormous list and scrolls the wrong way (or the 'gnorw way' if you think it's the right way), the four channel only has two mics amps, doesn't have XLRs throughout, and makes a terrible iPod. But these are the machines that have rewritten the rule book in portable pro audio.

In my house there was always a bit tension with my wife over recorders, as she preferred the simplicity of the Nagra BB. Which is an ARES in an over the shoulder format. However, she recently tried my Sound Devices 7 series and was a convert. Game over? No, Nagra has an LB coming. Dual screen, on board editing, record to external USB device (how cool is that?) and Ethernet for net delivery of your audio. Pretty sweet. So in question

form, do you want editing and a remote delivery option? If so, get on the Swiss bus. It won't be as cheap as pommes frites, but it's not expensive either for what you get.

And now the really big boys from the Sound Devices 744 Deva to the mighty Aaton Cantar. If this sector was being covered by *Top Gear*, then the star with the reasonably priced recorder would be sent out with the pro Edirol 4-track. The R-4 Pro has onboard editing and can do four track and has timecode, so it sits really in its own evolutionary niche. I haven't used one but people I respect do and love it, so keep it in mind. There are actually three machines in the range – you'll need to dig around a bit there, I haven't used one in anger. If you want a multi-track machine with timecode, with bomb-proof reliability to record high quality music or film sound, then step this way to the next question.

### Taking Gorgeous For A Spin

How many mic amps? If four is enough, the Nagra VI (it does run six tracks) should be your first port of call. Great finish, great sound, easy to use, surprisingly cheap, gorgeous screen – there's lots to like. If you're serious, read the whole review in *Audio Media* and take one for a spin. Oh yes, it does hard disk and Compact Flash, but not simultaneously, though it has a neat back up while stopped function. Downsides are that it's big (but not heavy), it's new so the software is maturing, and only four mic amps. However, it has managed to avoid competition from Sound Devices who

has a 744 with two mic amps, and the 788 with eight. I haven't tried a 788, but it seems to have all the SD advantages of great build in a very small package. I even wonder if it's too small, but without trying one I'll have to leave that till I get my hands on one. They now do a cute mixer, which somehow expands the track count. How do they do it?

I reviewed the Fostex PD 6 and really liked it. No nonsense recorder, probably designed in Yorkshire. Recording is to small format DVDs, and herein lies a cautionary tail, as Hitachi is no longer making the 8cm DVDs in a cartridge format. Fostex will supply you with a cartridge, and production of 8cm DVDs continues, but the

point is that most of our recorders are now tied to formats driven by other industries. The Fostex philosophy is firmly that if you need to change a setting, you should have a knob or switch to change it with. This is embodied in the new PD 606, with built in hard drive and 12cm DVD, six inputs and eight track record, with two tracks reserved for a mix. And still king of the knob count. I can see both sides of the ergonomic argument, having gaily recorded 'non optimally' on my Sound Devices, because I have missed 'set option number 57'.

Having said that, give a man a switch and he'll knock it by mistake one day, or in some cases every day. I can't say much about the HNB Portadrive because I've never used one in anger, though it does tick all the high-end boxes: eight channels, 24/96 resolution, AES31 or Pro Tools 5 session compatibility, removable drives, three built-in mixers, CD/DVD support, timecode, tri-level sync, and SCSI/USB/Ethernet/RS422/PS2 connections for playing nicely with the outside world... and more besides. And then we get to the very, heavy duty stuff, Zaxcom and Aaton. I've used the Aaton, but not the Deva. Watching Julian Howarth on the *Doctor Who* set I can see why the Deva has won so many fans. The comprehensive facilities, the workflow, the touch screen, the DVD burner for the hand on to post. It really does look good. But the Cantar is just too good looking, and too beautifully made, and too idiosyncratic to be anything other than the greatest piece of audio equipment in the world. Even though it only has five mic inputs and is made in France. Surely this is the recorder Brunel would have made had he lived another 150 years?

### With Me In My Coffin

So if the final question is, 'what piece of kit would you like to be buried with?', then Cantar X is the answer. So that in ten thousand years, when they dig you up to put you in the British museum, punters will queue round the block to gaze on the glory that was 21st century civilisation before the credit crunch swept us all away. And you, dear reader, will be revered as a king among recordists. A veritable Tutankhamun of sound. Even if in real life your ears were made of cloth and your fingers bananas, because of course it's the kit that maketh the recordist after all.

All that's left now are the questions I don't care about. Prerecord function, 192Khz, built in reverb, dilithium crystal recharge. You're on your own there. 

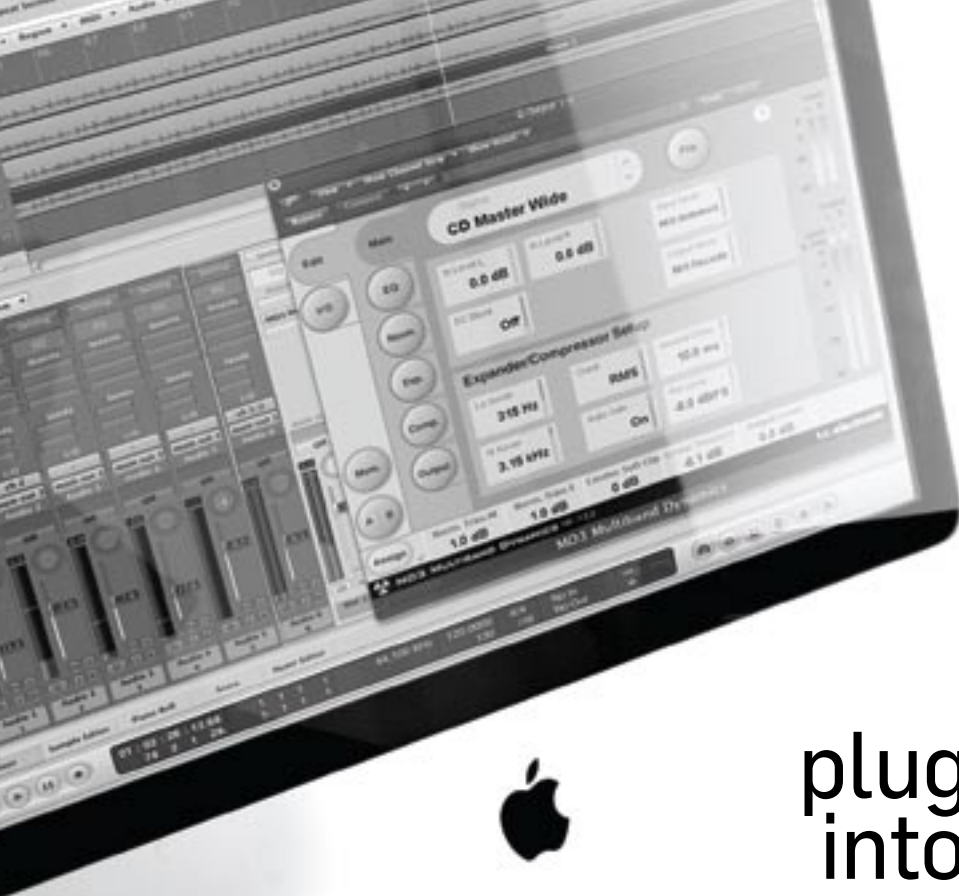
*The new 2009 International Buyer's Guide to Recorders is now available for download from [www.audiomedia.com](http://www.audiomedia.com).*



"... too good looking, and too beautifully made, and too idiosyncratic to be anything other than the greatest piece of audio equipment in the world. Surely this is the recorder Brunel would have made had he lived another 150 years?"



"In my house there was always a bit tension with my wife over recorders, as she preferred the simplicity of the Nagra BB. . . However, she recently tried my Sound Devices 7 series and was a convert. Game over? No. . ."



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# Control

## Mini third-party controllers

If you're looking for a portable or semi-portable controller for your DAW, RICHARD WENTK offers a selection of the current suspects.

Budget third-party controllers have sprouted where high-end designs have feared to tread, and the explosion of interest in loop players like Ableton Live and studio-in-a-box packages like Reason has spawned an entire support industry of small, inexpensive, and often unexpectedly interesting support hardware. While cheaper hardware struggles with the one-control-per-feature design ideal that is implicit on professional consoles, this is as much a problem created by the proliferation of complicated plug-ins as it is by the limitations of what's possible in a small affordable box.

Eventually assignable multi-touch interfaces with smart labelling will take over the industry. In the meantime, some controllers are starting to offer simpler auto-labelling, but for now most are still limited by how much you can remember and how much page switching you can be bothered to do. This isn't a huge limitation – having eight faders and a few switches in a small box can move you beyond mouse mixing hell. Going further into dynamic assignability and plug-in control is very much an optional complication, not an essential feature. What makes these budget products appealing is their flexibility – you can build a 32-fader mini-console to your own specification for less than the cost of your DAW software. Alternatively, most of these boxes are small enough to travel with, so you can pack them up and take them with you to sessions, or even work with them in a hotel room.

### Apple iPhone

From GB£100 including contract  
[www.store.apple.com/uk](http://www.store.apple.com/uk)

The iPhone has started to make unexpected inroads into the pro-audio market by offering a selection of more or less affordable DAW and audio control applications that use its WiFi support and multi-touch interface. While the screen isn't large, the tactile and configurable nature of the interface means that it can switch quickly between displaying faders, buttons, transport controls, switches, XY pads, and MIDI keyboards. With multi-touch, these function exactly as their hardware equivalents do – if you have enough fingers, you can press all of the keys on a MIDI keyboard at the same time, and they'll all send out note messages in the usual way.

The collection of applications started with an up-market Mackie HUI emulator for use with ProTools, but has since spawned a collection of more open-ended interfaces that cost a few pounds or are free. The one wrinkle is that these open interfaces tend to send information over the OSC protocol rather than MIDI. Because most DAWs can't yet understand OSC, an extra application like Reaktor or Max/MSP is essential to do the translation. This makes assembly more complicated than it really should be. But for those with the patience and perseverance, practical multi-touch has a very direct hands-on appeal.



### THE REVIEWER

RICHARD WENTK is the owner of Skydancer Media, a digital production company providing sound, image, design, and consultancy services to various clients in London and the West Country.

### Behringer BCF2000 Fader/BCR2000 Rotary

GB£110/GB£95

[www.behringer.com](http://www.behringer.com)

Behringer's expandable control surface one-two punch is almost ridiculously affordable, but offers some powerful

assignable control in a small but expandable space. The BCF2000 fader box includes a bank of eight 100mm motorised faders, with two assignable switches and a single rotary for each. The display is a very minimal numeric LED, so don't expect much help with plug-in parameter assignments. But it's difficult to argue with eight motorised faders that can be synced to most DAWs, especially when they come in a box this small



and portable. The BCR2000 rotary offers an alternative approach with a bank of 8x3 digital rotaries, with another couple of switches and an extra separate rotary with a different LED indicator system.

The visual display is another numeric LED, so once again, assignments aren't easy to read. But both the fader and rotary boxes include small scribble strips, and if your handwriting is small enough you can write on these in the traditional way to remind yourself what each control does.

### Akai MPD32

GB£215

[www.akaipro.com](http://www.akaipro.com)

The MPD32 is an obvious spin-off from Akai's historical sample triggering boxes and sequenced drum machines, so the emphasis is less on mixing and more on sample triggering and performance. Most of the control area is taken up with 16 supersized pads, which are both velocity and pressure sensitive, and further bank



switching extends the total pad count to 64. There are also eight assignable rotaries, eight faders, eight switches, and extra inputs for two-foot switches and a continuous

► foot controller.

The LCD display is larger than most, but isn't necessarily as detailed or informative as it could be. Similarly a total of 30 software presets isn't very generous – but it's likely that this unit will be most useful when paired with a software sampler for quick sample triggering for sound design, and not so much when attempting to be a jack of all software trades. The MPD32 is unlikely to be a first choice for straight DAW control, but the large pads offer convenient sample triggering which can sometimes feel more playable and responsive than a MIDI keyboard.



## Frontier Tranzport/Alphatrack

GB£110/GB£160

[www.frontierdesign.com](http://www.frontierdesign.com)

The popular Tranzport offers wireless DAW control from a solid and professionally built remote unit. The feature set isn't necessarily packed – there's just a single finger wheel and some buttons – but the layout and interface make track arming and level setting relatively intuitive, and the two line LCD can be configured to show settings and levels.



As a remote unit you can take it with you into iso booths and main studio areas. This is more of a recording controller than a mixer or plug-in controller, so it doesn't try to offer plug-in control features. But it does what it does very well and

solves the remote control problem very neatly. For mix management, Frontier also offers the Alphatrack, which is a 100mm channel fader and two line LCD in a box, with transport controls, extra buttons, and state indicators for muting, soloing, punch-in and out, and other standard recording and playback control features. The Alphatrack is USB powered rather than wireless, and the design isn't expandable, which may be a missed opportunity. But it's small and relatively powerful, and is ideal for situations where space is too limited for a bigger fader configuration.

## Novation Remote Zero SL

GB£185

[www.novationmusic.com](http://www.novationmusic.com)



The Remote Zero SL is the keyboardless version of Novation's Remote SL series of controllers. Even without a keyboard this unit is surprisingly large. The list of controllers is fairly comprehensive, with eight very short throw faders with two switches each, eight trigger pads, sixteen buttons, and sixteen rotaries, arranged as dual banks of eight. The faders and the other rotary/switch banks each have eight way dual-line LCDs that offer parameter names and values. In theory this is where Novation's automap technology displays the names of plug-in, DAW, and softsynth parameters. Two up/down page scroll buttons next to each LCD move through the list of parameters, and automap loads these automatically, so you don't

need to assign them by hand. This can work well in some contexts, but in practice the LCDs only offer short hints about parameter names. 'FEnvRel' is easy to enough to decipher when programming a softsynth, but many plug-in parameters are named more cryptically.

## PreSonus Faderport

GB£155

[www.presonus.com](http://www.presonus.com)

The slightly quirky PreSonus Faderport is a direct competitor with Frontier Alphatrack. There's a set of transport controls, which include punching and looping control, mutes, solos, fader automation control, and channel selection. There's also a single long-throw motorised fader and a rotary, which is pre-assigned to pan control. The strength of the Faderport is its solid build quality – it feels robust, and lacks the plastic built-to-a-budget impression created by some of its competitors. The chief weakness is that it's not expandable. It's also not a cheap solution, considering some of the alternatives available elsewhere. The absence of an LCD is another significant omission. There's no dynamic visual feedback of labelling or settings at all. It's limited to fader level, mutes/solos/record, and pan control. More positively, the supplied software requires only very minimal setting up to work with most DAWs, although some of the budget cut-down DAW versions aren't supported.



## CME Bitstream 3X

GB£323

[www.cme-pro.com](http://www.cme-pro.com)

An unexpectedly beefy controller from CME, the Bitstream 3X claims to offer '3D mixing' – which is nice. In practice this means there's a joystick and a single axis touch pad, and you can waggle all three at once. Far more useful is a decent sized LCD – the biggest of any these budget controllers – and an eight fader configuration with our assignable controllers per channel, and a separate bank of push switches which default to channel mutes. There's also a DJ style cross-fade slider and very useful transport controls. Exotic features include an LFO and MIDI arpeggiator, both of which can be routed to the automation system. According to CME, 13,000 presets are included to support all the usual music creation products, and Cubase/Nuendo. An expansion option can double up with another Bitstream to offer 16 fader channels. While this is easily the most comprehensive of the budget boxes, and it can make mixing feel much more intuitive, it's still a budget product. Build quality isn't necessarily bomb proof, and professional users may want a

hands-on session before investing. Even so – it's one of the more thoughtful of the fader boxes, and worth a serious look.

## Contour Design Shuttle Pro 2

GB£79

[www.contourdesign.com](http://www.contourdesign.com)

In a world of music-based controllers, it's reassuring to see that AV users haven't been forgotten. Contour Design's Shuttle series of products offers a desk-based jog-shuttle wheel ►



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# SO PURE

NEW EXPOSÉ E8B AND VXT SERIES FROM KRK

Purity. Freedom from adulteration or contamination. That's what you need in the recording studio. Pure and simple uncoloured audio. KRK engineers understand this, and take great care to offer speakers that can be relied upon to deliver. The Exposé E8B and VXT series take studio monitoring to a whole new level. With an attention to detail and design expertise unmatched in the industry today KRK has truly raised the bar. Key design elements such as a sleek radiused edge enclosure with optimised airflow and minimal port turbulence, and finely tuned custom components, all ensure that the new Exposé E8B and VXT series deliver a pure and realistic sound that is in a class of its own.



EXPOSÉ E8B

- in an ergonomic stand-alone unit that fits easily under the hand. The software can be configured to assign various features to most DAWs and video editors. The Pro V2 includes a silver easy-grip jog wheel, and a rubberised and sprung shuttle wheel around it. There's also an impressive complement of fifteen assignable buttons. These can be used to create your own favourite quick-cut edit shortcuts – the whole not unlike a budget version of Fairlight's Binnacle highly rated interface. Nine of the buttons have removable keytops for custom legending. The other six are conveniently placed for quick access, and even without legending muscle memory soon makes them transparent. For users who want a smaller feature set there's also an Xpress model with five buttons and a jog/shuttle wheel for £35.



### Novation Nocturn

GB£77

[www.novationmusic.com](http://www.novationmusic.com)

This minimal budget controller takes Novation's clever automap technology and moves it into a tiny format designed to work next to a laptop or QWERTY keyboard. While the Nocturn is really aimed at cross-over and club use, the automated parameter assignment and easy page switching means it can also find a home in a professional workspace. The controller complement is as basic as the price – there are



eight assignable ring-illuminated rotary encoders, eight illuminated buttons, a single 45mm cross fader, and a dial that controls whichever on-screen parameter is under your mouse pointer. Automap is controlled with a separate selection of buttons which drive on-screen parameter viewing and plug-in switching.

### Korg Nanopad

GB£41

[www.korg.co.uk](http://www.korg.co.uk)



Understated nano-interface with some unexpectedly useful features. The 12 touch pads are velocity sensitive and can send MIDI note and controller data, so they're ideal for triggering samples for sound design, and can also be used for creative plug-in control and for soloing/muting mixer tracks. The XY pad includes roll and flam modes for drum programming, but can also send out any MIDI control change parameter for two-way control of plug-ins and effects. Four scene memories provide fast switching between set-ups, which can be programmed using software available as a free download from Korg's website.

### Korg Nanokey

GB£35

[www.korg.co.uk](http://www.korg.co.uk)

Probably the smallest and cheapest keyboard controller available, the Nanokey is cheap and



light enough to use while travelling. Two octaves of keys can be switched between velocity sensitive MIDI note transmission – there's no aftertouch – or preset MIDI CC message triggers. A couple of extra modulation buttons can be set up to send extra messages. It's easy to set up the whole for quick switching and muting of mixer tracks or sample triggering. There's also a free cut-down software version of Korg's M1 workstation synthesiser (although you may want more than 25 notes to get the most from that).

### Korg Nanokontrol

GB£41

[www.korg.co.uk](http://www.korg.co.uk)



The last of the Korg nano-interfaces packs an impressive nine nano-channels with extra transport controls into a tiny interface. Each channel includes a (very) short-throw fader, an assignable rotary encoder, and two buttons. Assignments can be stored in four scenes. The default set-up assumes traditional mixing, with the faders assigned to volume, the switches to mutes and solos, and the rotaries to panning. But almost any parameter can be assigned to any of the controllers on each channel, so the unit is potentially far more flexible. The one catch is the lack of automapping – plug-in parameters have to be set up in a scene by hand. **AN**

# INTRODUCING THE TEAM

**THE BRICASTI DESIGN MODEL 7  
STEREO REVERB PROCESSOR**

**THE TEAM:**

The design philosophy of the Model 7 is a carefully considered statement of Bricasti's vision of what the evolution of reverberation processing in its most classic form can be.

The Bricasti Design Model 7 provides the highest level of musicality and ease of control imaginable in a processor dedicated to the task of reverberation.

A modern high resolution digital design, utilizing a stunning array of the latest DSP processors, provides a platform for the long overdue next step in reverb processing algorithms.

A separate fully differential analogue section and dedicated transformer based linear power supply provide the finest

analogy specifications of any product of its kind.

The new Bricasti Design Model 10 remote console is a dedicated hardware remote Controller for use with the M7 stereo reverb processor, it can control up to 8 units.

The people team behind Bricasti, Brian Zolner and Charles Dowdell, have been in the reverb business for a long time, with many years experience working on the cutting edge of reverb technology design.

**Bricasti** Design



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# Product Sampler

## Trade Shows 2009



The **2009 NAB Show** is due to be held in Las Vegas this April, and will include new pavilions and exhibitors showcasing the latest developments in 3D, mobile solutions, content, and IPTV. The Show will once again put content and the content

lifecycle in the spotlight through the provision of over 1,600 exhibits, featuring the industry's top innovators. Conferences will run from April 18-23, exhibits from April 20-23.

"The new pavilions featured on the exhibit floor will allow content professionals from all sides of the broadcasting spectrum to come together to share experiences, explore opportunities, and examine new business models for distributing content over next generation platforms," explained Executive Vice President of Conventions and Business Operations, Chris Brown.

The Show returns to the voluminous surroundings of the Las Vegas Convention Centre, located near the Las Vegas Strip, and within walking distance of over 100,000 guest rooms.

[www.nabshow.com](http://www.nabshow.com)



**Broadcast 09** aims to familiarise an industry that is in the midst of a profound transformation with the latest-generation technology

designed to serve its changing needs. The show integrates all sectors, and provides a link to the academic world and authorities through workshops, seminars, and conferences. With ongoing advances rendering past technology obsolete, and the proliferation of both public and private broadcasting stations, Broadcast addresses the need for adaptive audio-visual equipment. The show will be held in Madrid, Spain, at the Feria de Madrid, from November 3-6.

[www.broadcast.ifema.es](http://www.broadcast.ifema.es)



The **Audio Engineering Society Convention** is a bi-annual pro-audio event that combines exhibits with technical sessions and user seminars. Each year, AES is held once in Europe, and once in the US. It has generally been thought of as the key event for the world's pure pro-audio industries. Attracting academics, engineers, and artists alike, its papers, workshops, and standards committee take up a large portion of the convention, running in parallel with the main exhibition. Traditionally, each event has a theme, a respected keynote speaker to officially open proceedings, and a packed programme of events.

This year, the 126th AES Convention hits Munich from May 7-10. The Stateside event alternates between the east and west coast each year. This year, it's east for the 127th AES Convention, to be held at New York's Javits Center from October 9-12.

[www.aes.org](http://www.aes.org)



**IBC** will be returning to Amsterdam's RAI Centre in 2009, with conferences running from September 10-14, and exhibits from September 11-15. Last year's event broke all

records for the show's organisers, with 49,250 attendees from over 130 countries worldwide. The show housed more than 1,400 exhibitors, providing exclusive showcases, one-to-one meetings, and networking opportunities.

The IBC awards ceremony-honoured projects as diverse as multi-platform content distribution, an idea to save studio lighting bills, and a system to bring 16 times the resolution of HD to our screens.

[www.ibc.org](http://www.ibc.org)



Frankfurt am Main  
1 - 4.4.2009

The **international Prolight and Sound** trade fair presents products from the fields of event and communication technology, audio-visual production, and entertainment. It runs for four days from April 1-4, in Frankfurt, Germany. Over these four days, the trade fair brings together exhibitors, trade visitors, dealers, and professional users at the Frankfurt Fair and

Exhibition Centre. Last year's event attracted 112,000 visitors from 126 countries, in partnership with its parallel sister show Musikmesse.

Musikmesse exhibitors give dealers, professional musicians, and music lovers an insight into the latest trends in musical instruments, sheet music, accessories, and computer hardware and software. However, the focus is not solely on music making. This year will see the third incarnation of the Musikbiz area at the fair, a separate exhibition hall dedicated to the marketing of music, labels, and publishers, as well as performance and further-education opportunities for musicians.

[www.prolight-sound.com](http://www.prolight-sound.com)



**NAMM** hosts two trade shows in North America for the musical instruments and products industry in the year.

First up, The NAMM Show 09 rolls into California's Anaheim Convention Centre from January 15-18. Last year's event saw nearly 90,000 visitors turn out to see over 1,500 exhibits.

Later in the year, NAMM Summer Session will be returning to Nashville, Tennessee, from July 17-19. The Summer show is roughly one-third of the size of the main event, and focuses more on industry meetings and professional development.

[www.thenammshow.com](http://www.thenammshow.com)



Dating back to 1977, the annual **PLASA Show** is a well-established technology trade event for the entertainment and installation industries. The exhibition has continuously attracted buyers and

specifiers from around the world, and is now probably the UK's most successful show in this arena. PLASA 2009 will be held from September 13-16 in Earls Court London. It will be the 32nd exhibition to be held in the venue by the Professional Lighting and Sound Association. PLASA is an international show, delivering the latest technology, product launches, and networking opportunities for retailers and buyers alike. It also offers an educational programme designed to respond to and influence change within the entertainment and installation industries.

2009 will also see the launch of a second PLASA event; **PLASA Focus**, a networking event held in Leeds' Royal Armouries on Tuesday 28th and Wednesday 29th.

[www.plasashow.com](http://www.plasashow.com)  
[www.plasafocus.com](http://www.plasafocus.com)



**Broadcast Video Expo** is the new name for Broadcast LIVE and VideoForum. The organisers claim that it is the UK's only event dedicated to technology for production, post, delivery, audio-visual, and new media. The show hosts 200 leading manufacturers, with last year's event attracting more exhibitors and visitors than any other UK industry event in over a decade. 2009's show will be expanded to include more stands, seminars, workshops, and conference sessions. The show will run from February 17-19, in London's Earls Court 2.

[www.broadcastvideoexpo.co.uk](http://www.broadcastvideoexpo.co.uk)



From July 16-18, the Suntec Singapore International Convention and Exhibition Centre will play host to the 20th staging of **PALME Asia**. The show prides itself as being the most established international exhibition and conference showcasing sound, lighting, audio-visual, music, broadcast, and system

installation in the South East Asia region. The show's organisers state that last year's event attracted a total attendance figure of 8,166 from over 30 countries. With a subtotal of 4,660 trade visitors, the show maintained its reputation as the largest gathering of industry professionals in the region.

[www.palme-asia.com](http://www.palme-asia.com)



Over the last three years, the **Develop Conference & Expo** has established itself as the leading event for games design and development professionals in Europe. Develop 2009 will be held in Brighton

from July 14-16. Last year, over 1,200 developers from every level descended on Brighton to meet, learn, share, and network with peers.

The show aims to help today's developers make better games with seminars, sessions, workshops, expositions, and networking opportunities.

Each evening following the show, the organisers put on a series of beer-fuelled icebreakers, debates, and awards.

[www.develop-conference.com](http://www.develop-conference.com)



The **London International Music Show** is back for its second year at the ExCeL Exhibition Centre in the London Docklands, from June 11-14, 2009. The UK's biggest music exhibition showcases over 200 top

manufacturers, and incorporates four sections; Drummer Live, London Guitar Show, Unplugged, and Sound Recording Technology. Featuring professional musicians, an exhibition of the best MI brands, and a host of seminars and activities, this is a show for anyone with an interest in making music.

Names are yet to be announced for 2009, but last year's show featured artists such as Joe Satriani, Paul Gilbert, Chad Smith, and Jason Bonham.

[www.londoninternationalmusicshow.com](http://www.londoninternationalmusicshow.com)



**Music Live** is the place to check out the latest and greatest gear from the world's most famous brands. The show is set to run in the Birmingham NEC from November 6-8, and will see the return of its Live Stage and Drum

Clinics, an expanded Sounds Expo area, and a host of guest stars performing, signing, and meeting and greeting. Previous guest stars include Rick Parfitt, Chad Smith, and Duff McKagan.

The show also incorporates Sounds Expo, a Music Technology and Sound Recording exhibition that gives visitors the opportunity to try out gear, and get expert advice to suit their project and budget.

[www.musiclive.co.uk](http://www.musiclive.co.uk)



**PALME 2009** is the Middle East's unique showcase for major international manufacturers, key regional suppliers, installers, and integrators from the professional entertainment, events, and project installation industries. The show is due to take place from April 26-28 at the Dubai International Exhibition Centre. Last year's show attracted 272 exhibitors from 27 countries, and nearly 9,000 visitors, making it the biggest PALME to date.

[www.palmeonline.com](http://www.palmeonline.com)



The 31st **ABTT Theatre show** will take place in London's Royal Horticultural Halls from June 10-11.

Attracting an expanding visitor base year on year, the ABTT Theatre Show's core attendance comes from parties involved in equipping, refurbishing, and upgrading drama studios, theatres, and auditoria. Other frequent attendees include architects, consultants, and building services managers.

[www.abtt.org.uk](http://www.abtt.org.uk)



In 2008, Siel, Satis, and Le Radio merged to create a single event, uniting the markets of audiovisual technology, live entertainment, event production, and radio broadcasting. 34,412 trade professionals converged on Paris to mark the coming together of the three shows. Now in the second year of its new format, **SIEL-SATIS-RADIO!** will be held in Paris at the Paris Expo, Porte de Versailles exhibition centre, from October 19-22.

[www.siel-satis.com](http://www.siel-satis.com)

# video guide

A Sound Pro's Guide To Video

## Light & Lighting – Part One

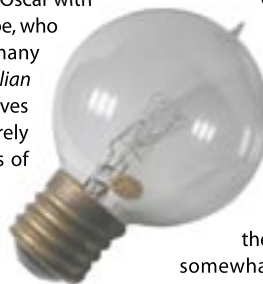
**Every good Director of Photography knows that lighting is everything in a picture. KEVIN HILTON puts the spotlight on the tricks of HMI and LEDs, and even the physics behind the floodlights.**

The art of cinematography involves a great deal of equipment and technology that has grown in sophistication over the years. Despite that, just about every Director of Photography will tell you that the job comes down to manipulating the lighting. Hardly surprising, then, that an outstanding cinematographer of the 1940s and '50s, John Alton, called his book on the subject *Painting with Light*.

Alton did that with black and white for the film noir *The Big Combo* (1955), and in colour on *An American in Paris* (1951), sharing the best colour photography Oscar with Alfred Gilks. The English DP Douglas Slocombe, who shot the first three Indiana Jones films, many Ealing Studios films, and the original *The Italian Job* (1969), says a good photographer observes how light works in a space, and does not rely heavily on technique or think just in terms of footcandles (see glossary).

### Classically Inspired

Picking out people and objects in light on a darker background is something that was perfected by artists like Rembrandt – his *Night Watch* is an outstanding example of this – and stills photographers and cinematographers do much the same thing with lenses, film stocks (and video and now data media) and lamps. This two-part examination of light and lighting will look at the basic types of lamp, how they are used, and the latest advances in technology.



But an understanding of the nature of light and what it can do is as important as knowing about floodlights, keylights, HMI, and LEDs. So, a quick trip back to basic school physics. Visible light comprises electromagnetic waves that travel at 186,300 miles a second (approximately 300 million metres a second). Radiant energy is produced by natural and man-made sources, among them the sun, electric lamps and radioactive ore, and travels in space as electromagnetic radiation.

The visible light spectrum is usually considered to be wavelengths between 39,000 and 76,000 AU (Angström Unit, equal to a ten millionth part of a millimetre). The components of this spectrum are revealed when white light is split by focusing it through a prism or, more romantically, when water vapour in the upper atmosphere does much the same and forms a rainbow.

The ability of humans to process and quantify the light in any situation is a balance between the somewhat imperfect nature of the eye as a receiving device, and the ability of the brain to correct and interpret the information it receives. This means that judging any amount of light in a scene is a mix of subjectivity – what we think we are seeing – and objectivity – the reality of what is there to begin with. So much of working with light is comparative and depends on the situation: a pocket torch will light up a dark space, but in daylight it will appear very weak indeed.

## GLOSSARY

### Footcandles, Lumens, Lux

All three are measurements used in lighting, although many cinematographers work instinctively rather than relying overly on meters and constant adjustment. The lumen measures luminous flux, that is the rate of luminous energy. Each lumen unit is equal to the quantity of light per second from a point that is producing one candlepower of intensity in a unit solid angle (in other words, an angle created at the vertex of a cone). Light from an electric bulb can be determined in lumens per watt. The candle was replaced as the international System of Units (SI) measurement of luminous intensity by the candela. A candela is defined as the luminous intensity, in a given direction, of a source emitting monochromatic radiation of a power of  $540 \times 10^{12}$  Hz, with a radiant intensity of in that direction of  $1/683$  watt a steradian (SI unit of solid angle). Lux is the international metrical measure of the intensity of illumination, being equal to one lumen hitting a surface of one square metre at a perpendicular angle. A footcandle is the more common term of measurement in cinematography, being the intensity of luminosity produced by a standard candle on the surface of a one-foot radius sphere one foot away. The footcandle measures direct incident light illuminating a subject from external sources. One footcandle equals one lumen per square foot, while the lux is similar to the footcandle, only in millimetres; 10.764 lux equals one footcandle.

### References

On Camera by Harris Watts, BBC Books 1984  
Dictionary of Cinematography and Sound Recording by Wallace S Sharps, Fountain 1959  
The Complete Film Dictionary by Ira Konigsberg, Bloomsbury 1987  
Lighting for Television and Film by Gerald Millerson, Focal Press 1991  
Interview with Douglas Slocombe by Kevin Hilton, British Cinematographer magazine 2004

## A Sense Of Light

The eye does not distinguish variations in light levels as they are in reality, the scientific reason being that its response is logarithmic and so a light meter should be used for accuracy, something many old school cinematographers would scoff at. Still, those working with light need to be aware of the three primary sources: incident light, the strength of light hitting a subject; surface brightness, the amount of light reflected from areas of a scene; and integrated light, which is the average amount of reflected light that reaches the camera. Talking about light can be done in general, non-specific terms, such as 'warm' or 'cold', but only gets over a sense of what is meant.

Despite the compromise of the human eye-brain method of processing light, it is much more selective in recognising light intensity and colour than a camera. Artificial lighting is needed when filming a scene, whether outdoors or inside a building, because natural and standard domestic light are much more suited to the human eye. Which is why most stunning sunsets and landscapes tend to look disappointing in photographs, and ordinary house lights are not suitable for film or TV work, unless the production is a documentary or socio-political realist drama.

So, some form of more powerful, additional lighting is added to make a scene look like it should on screen. Above that light can be added and manipulated for artistic and dramatic effect; think of the over-blown Technicolor of

# Light & Lighting – Part One

## news

Arnold and Richter Cine Technik, better known as Arri, produces cameras, accessories, and lights for the filmmaking business, and during 2008 expanded its range of luminaires with the True Blues.

The new lamps are an extension of Arri's established lighting products from the last 20 years and incorporate many features requested by users. In excess of 30 improvements have been made, including lighter and more compact housings.

The True Blues, which so far comprise the T1, T2, T5, ST1, ST2, and ST5, are studio, Tungsten models designed to work with Fresnel lenses, just one of many accessories intended for the range.

Among the upgrades is an enhanced tilt-lock function, made possible by a stainless steel friction disc that can be fastened securely to prevent the lamp head tipping forward when heavy fixtures are mounted on the front of the housing. Also included is a stirrup adjustment in the centre of the mount that enables the lamp to slide to the point where the centre of gravity is exactly or close to tilt lock, again taking into consideration what is attached.

The True Blues can be mounted in a variety of positions, including from ceiling grids and on floor stands. This is made easier by the Stegmaier connector, a cable outlet that can be rotated to change the angle at which the lead feeds away from the lamp. The barn doors on the front of the housing have been strengthened to prevent bending, and now can be fitted vertically without fear of damage while the lamp is on a flat surface.



*Gone With The Wind*

*Gone With the Wind* (1939) or the brooding menace of a film noir like *Double Indemnity* (1944), and you'll see what well thought out lighting can bring.

## Lit By God

During the early days of filmmaking productions were shot outside. This included the obvious location shoots, but also indoor scenes, which were sets built outdoors and photographed so this was not apparent. By having something 'lit by God', to use Douglas Slocombe's grand but appropriate phrase, a hard and even light was achieved.

Even when purpose-built studios began to appear, some had glass roofs so sunlight could still be used. But the enclosed, sealed studio we know today soon became the norm and the first cinema lights came into play. These were non-incandescent carbon arc and mercury vapour lamps, which gave a more natural look to interior shots because the amount of contrast could be adjusted, highlighting the textures in a scene.

This style was used in the first Hollywood productions, notably the collaborations between director DW Griffith and cameraman Billy Bitzer. At the time, the German expressionist directors were exploiting a darker, moodier way of lighting directly influenced by the chiaroscuro (light and shade) style of painters like Caravaggio.

by the longer-lasting tungsten-halogen, or quartz-iodine, lamps. Whatever the source of the illumination, film lights fall into two categories: the floodlight, used to produce a large amount of diffuse light; and the spotlight, a more directional lamp that can focus on a specific part of a scene.

A basic floodlight often contains a single bulb with a reflecting surface behind. By adjusting the distance between bulb and reflector, the light can be focused and the amount of intensity adjusted. An example of this type of floodlight is the 'broad' or broadside, which produces a wide, soft, flat, even beam of light. It is classed as a fill light, which is non-directional, and when one is used it is called a single broad, or emily, while two make up a double broad.

Spotlights comprise a lamp, a reflector, and a condenser lens. The lens is invariably a lightweight Fresnel model, which has concentric circles on its convex side. This is positioned in front of a light source and acts as a condenser. When the Fresnel is placed close to the bulb, light floods out; placed further away it becomes a spotter by controlling the amount of illumination in terms of area and intensity.

There are several types of spotlight.

The coming of sound once again had a major impact on the camera department, and the noisy carbon arcs had to go in favour of a quieter source of light. More sensitive film stocks were able to work with incandescent lights (ones that produce illumination by being heated), although carbon arcs were still needed for early colour films, which required a vast amount of light.

Initially, the basic tungsten filament bulb, developed from the work of Humphry Davy, Thomas Edison, and Sir Joseph Swan, provided incandescent sources, but were superseded

The senior spot is a large luminaire of around 5,000W that is used as the key light in a scene; the junior serves the same purpose in smaller set-ups but is approximately 2,000W; and the baby, usually throwing out a wattage of 500 to 1,000. A specialised spotlight is the brute. The name was originally trademarked but is now used in a generic sense, applying to big, high-intensity arc spotlights in the 225 amperes range. It ranks amongst the biggest studio lamps, and became a standard part of colour shooting.

## Unattractive Nakedness

A naked light is often an unsubtle, unattractive tool. In the home a shade gives the light direction or can dampen its power to create a warmer, more welcoming effect. In much the same way cinematographers have a range of accessories available to them so that the light produced by the brutes, broads, and whatever else they are using, can be controlled and applied tastefully and artistically to enhance the story.

These include barn doors, the flaps fitted to the front of a lamp that can be used to reduce or stop the flow of light to specific parts of a set. Shutters, scrims, nets, and various diffusers can control intensity, while cookies and goboes are used to make shadows, and filters introduce colours.

This two-part feature on lighting concludes in the next edition by looking at developments in lighting sources, lighting set-ups, and the future for the humble light bulb. **AM**

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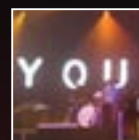
TOURING • INSTALLATION • THEATRE • SYSTEMS INTEGRATION • PRODUCTION

# AUDIO MEDIA

## *Sound Reinforcement*

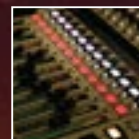
### AMSR News 64

Technology, application, and installation news from the global sound reinforcement community.



### Digico SD8 66

SIMON ALLEN gets to grips with the latest digital audio console from Digico.



### Picture House 70

Edinburgh has a new live music venue that looks set to bridge the size gap for artists visiting the city.

JONATHAN MILLER runs to MAMA.



AMSR is the regular AUDIO MEDIA Sound Reinforcement section, aimed squarely at SR professionals across Europe. Following the *Audio Media* ethos, the emphasis will be on the product reviews and technical features written by working industry professionals that anybody in SR will find relevant and useful.



Legendary soul musician Ray Charles has been honoured in his hometown of Albany, Georgia. At the centre of a five acre park, Ray Charles Plaza features a life-sized statue of the renowned musician, sat at a grand piano and surrounded by fountains. A sound system with Community WET loudspeakers plays his music at the monument. The Community loudspeakers were chosen for their resistance to the elements, and hopefully therefore, fountains.

[www.loudspeakers.net](http://www.loudspeakers.net)

Alcons Audio has introduced a compact pro-ribbon sound system to its product range. The CR1



is a three way sound system, designed to provide medium output, high quality cinema and A/V sound reproduction. It is designed for cinema theatres,

screening rooms, dubbing stages, and surround sound recording applications.

The MDF enclosure is 18cm deep, allowing it to be mounted behind the screen, stacked, or flown.

[www.alconsaudio.com](http://www.alconsaudio.com)



Razorlight are currently promoting their third studio album on a sell-out tour. Guitar Technician Guy Cowen has updated the guitar rigs for the band's hit tour to include the new Trantec S5.5 transmitter systems. "One thing that stands out is that I'm able to do three shows on one AA battery," enthuses Cowen. "This will save us a fortune in batteries... the guitar sound has also improved."

[www.trantec.co.uk](http://www.trantec.co.uk)



Scouting For Girls' FOH Engineer talks about his experiences from the band's recent UK tour.

Front of House Engineer Andy Williamson recently worked with ADLIB Audio to create the sound system for Scouting for Girls' UK tour. Having worked with ADLIB's Andy Dockherty and Toby Szabo on previous gigs, he was keen to get the company onboard for their first full touring show together. "ADLIB work in a very personal way with all their clients, and I wanted a company that could guarantee this commitment to service and attention to detail," he explained.

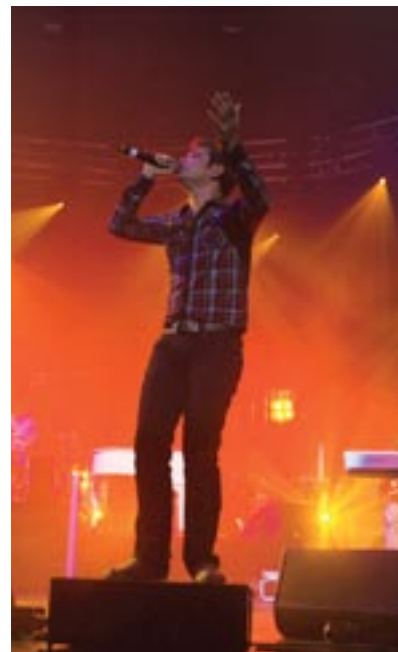
The sound system for the tour was driven by the new LA8 amps with onboard processing, and consisted of eight V-DOSC elements per side, with six L-Acoustics SB28 subwoofers and four ground-stacked ARCS on each side. To help the system adapt to varying venues, they also carried 24 dV-DOSC and four dVSUBS to act as side hangs.

At Front of House, Williamson chose a DigiDesign Profile, into which he ran 33 channels, utilising the console's onboard processing and plug-ins. Monitor Engineer Matt Simmons ran 12 mixes and two IEM Sennheiser G2 systems for guitarist Pete Clements and Drummer Pete Ellard, from a Yamaha PM5D console. DBX 160SL compression ran in line with each set of IEMs, and a dVSUB at these positions added a bit of air and base movement.

**ADLIB Audio**

+44 (0)1514 862216

[www.adlibaudio.co.uk](http://www.adlibaudio.co.uk)



## DPA At Cité De La Musique

DPA Microphones' French distributor Audio<sup>2</sup> has provided DPA MSS6000 microphone summation systems and 4060 miniature omnidirectional microphones to the Cité de la Musique in Paris for two Serge Gainsbourg tribute concerts.

The concerts featured over 70 voices, including those provided by Brigitte Fontaine, Martina Topley Bird, and Placebo's Brian Molko. The large input count provided a challenge for the event's sound engineers. However, using two MSS6000 microphone summation systems, they were able to considerably reduce the number of inputs reaching FOH, and cutting the amount of cabling on stage.

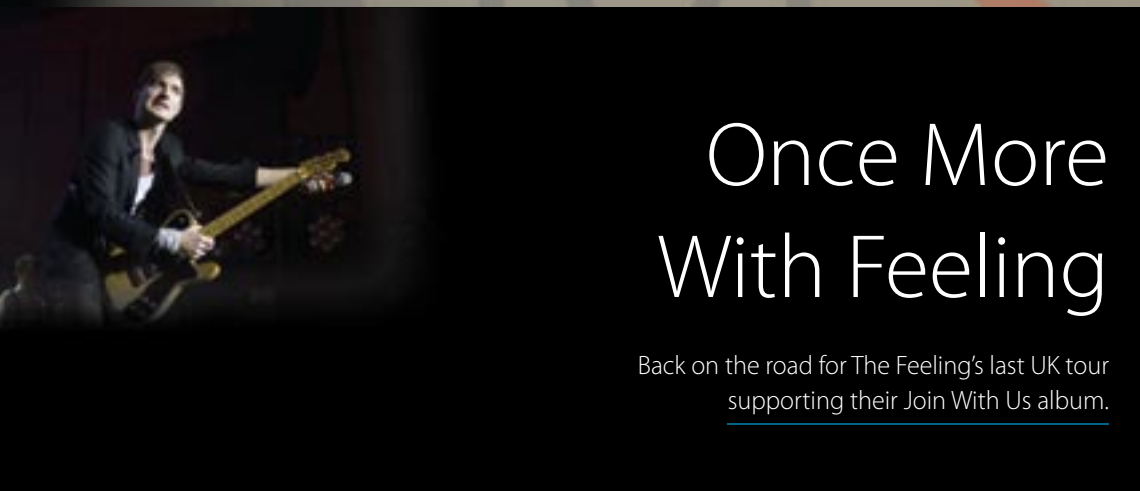


FOH Engineer Bruno Morain was also pleased with the performance of the DPA 4060s. "The 4060s were perfect for this application for several reasons," he explained. "Firstly of course for their sound characteristics, but also for their mounting accessories... We showed the musicians how to attach the mics to their instruments just once, and they did it for themselves for the following rehearsals and concerts without any problems."

**DPA Microphones**

+1 303 485 1025

[www.dpamicrophones.com](http://www.dpamicrophones.com)



# Once More With Feeling

Back on the road for The Feeling's last UK tour supporting their Join With Us album.

Before embarking on their current writing and recording break, British pop-rockers The Feeling spent November touring Ireland and the UK.

Front of House Engineer Jon Sword selected a Turbosound's Aspect system, and added a number of Flex Array cabinets. Whilst the variety of venue size on the tour meant that the system had to be adapted frequently, Sword claims that the Turbosound cabinets provided sufficient headroom to avoid ever pushing the system too far.

"For me, a system has to be very powerful but very smooth," commented Sword. "If you like to mix loud, like I do, you don't want to hurt people. The clarity of the Aspect and Flex Array speakers means you don't get that additional colouration and distortion, you just get the power."

At FOH, Sword relies on the audio system to adapt to his dynamic mixing style. "I'm always pushing dynamics," he explained. "I've been with this band since the year dot, and there's a great deal of interaction between what they play and what I do... I'm not content to sit there and just balance things, because I don't think that's what music is all about."

**Turbosound**

+44 1403 711447

[www.turbosound.com](http://www.turbosound.com)



This year's MTV Europe Music Awards were held at the Liverpool Echo Arena, and featured performances from Take That, The Killers, Beyonce, and Kanye West, to name a few.

An L-Acoustics V-DOSC line source array system was used by Britannia Row for the event. "Using L-Acoustics' presets, I was able to create a smooth low frequency sound throughout the audience," commented Systems Engineer Sergiy Zhytnikov.

[www.l-acoustics.com](http://www.l-acoustics.com)



TC-Helicon has released a software update and several application videos for Harmony-M, its vocal harmony device for MIDI keyboard players. The update and videos are available through the company's website.

NaturalPlay, an intelligent harmony arrangement algorithm in Harmony-M, provides a variety of voicing options, including bass voicing, unique to Harmony-M, which follows the root of the current chord.

[www.tc-helicon.com](http://www.tc-helicon.com)

## Delta Sound Consolidates Middle East Market

Delta Sound has made good use of its new DigiCo D5 Live in recent months, supplying touring equipment to big names in the Middle East. Recent customers of Delta Sound include George Michael and Maroon 5.

"It's great to have access to DiGiCo products in the Middle East," commented Front of House Engineer, Jim Ebdon. "It means that I can just take my settings with me on a USB key, rather than having to ship large amounts of kit."

This is a major consideration for Ebdon, who prefers to keep his FOH booth streamlined, with only a handful of outboard. "On this occasion it was particularly useful, because the other option available would have meant using two desks instead of just the one D5.

Delta Sound's expanding catalogue of equipment that is familiar to the touring market has made the company a popular choice for artists visiting the Middle East.

"We moved to larger premises and have made a substantial



investment in our rental stock," explained Delta Sound's CEO, Andy Jackson. "We now have enough kit to service major acts that come to the region."

**Delta Sound**

+44 (0) 7973 159470

[www.deltasound.co.uk](http://www.deltasound.co.uk)



Gearhouse South Africa supplied rigging, lighting, sound, and video for Rod Stewart's recent South African tour.

The Gearhouse Audio team used varying sizes of L-Acoustics VDOSC rig for the shows. For the tour's largest venue, the team used 48 VDOSC elements, with 15 a side for the main hangs, 10 a side for each outer hang, two dVDOSC delays, and one Kudo delay.

[www.gearhouse.co.za](http://www.gearhouse.co.za)



## DIGICO SD8

### Digital Audio Console

**SIMON ALLEN** finds the modern engineering behind a touch of black and gold retro styling in DiGiCo's SD8 – a console that can do everything, and do everything well.

It was only a year ago that DiGiCo released its new flagship console, the SD7, before the launch of the SD8 at Plasa 2008, which just shows how busy the company's been. DiGiCo has grabbed much attention by now offering the lowest cost option in this class of mixer, and combined with its growing reputation is proving great sales figures already. DiGiCo is one of the original players providing digital audio systems, and is very confident with its new technology already employed in the SD7, so I was sent for a grand tour of this compact but powerful mixer.

#### Overview

The black and gold colour scheme might be modern with a touch of retro, but makes this desk very recognisable. The overall look is very clear and solid, giving the genuine impression of several years of development. It is a very clean and tidy workspace, with practical issues taken into consideration such as the keyboard and laptop surfaces. It is a very simple layout that is easy to work with and, of course, user definable.

There are 37 motorised touch sensitive faders, one master, and three groups of 12. I really like the faders being in groups of 12 rather than eight, which we're all used to as it's more practical. Nine times out of ten you can see the whole drum kit for example, rather than jumping around. The desk defaults to the left and right banks of 12 being input channels, and the centre bank being master outs and auxiliaries. This is a standard layout known well, but

the layout is user definable, and all three banks can be input channels giving you 36 inputs on the surface.

The desk can handle up to 60 mono or stereo channels which is equivalent to 120 channels of DSP processing. There are 24 mono or stereo busses, and stereo master all with full processing, which is equal to 50 busses of DSP processing. The SD8 has two DSP Tiger SHARC chips that handle all the effects processing while everything else is handled by a single FPGA chip with over 1500 pin connections. This is DiGiCo's new technology that it claims is superior to any DSP system today. The SD8 also has two stereo solo busses making it ideal for monitor engineers. In fact I found the way the SD8 used solo busses very intuitive, and one of those things monitor engineers will wish they've always had. In addition, the SD8 has a very flexible 12 x 12 matrix.

The work-surface is very functional, but also the number of controls has been kept to a minimum. It felt like everything you needed was always there and where you might expect to find it. There hasn't been compromise on any area, and regularly used components such as EQ and dynamic controls are very

comfortable. There are three rotary knobs per channel, and screen access/function switches on all faders. There are screen navigation and fader level buttons to hand, making navigating the whole desk on one screen very easy. An additional screen can be connected for extra visible monitoring if required. There are also eight 'macro' buttons for any user definable function and an



#### THE REVIEWER

SIMON ALLEN is Stage and Studio Manager of High Barn.



automation control section.

In the centre of the console is the touch screen with all the GUI for the system. The colours are less bold than some of the other desks out at the moment, but easy to work with and memorable. The display of the channel strips are compact but easy to use and by touching what you want to edit, larger windows open for fine tuning. The screen works well, and is bright with an anti-glare finish ideal for outside festival situations. There are also a number of locations where the software harbours the scrolling technique now used on the iPhone, which is very natural.

The complete SD8 system comprises of the console and its own stage rack for all the mic line and return connections connected to the desk on MADI. There are dual BNC MADI connections so should there be a failure on one, the system will automatically switch to the other. Most manufacturers are now giving this option, but what I really like is the fact that DiGiCo uses MADI which isn't proprietary so you can connect other digital audio devices to the system. The MADI connections along with the laptop standing on top of the console means live recording is extremely painless with something like an RME MADI interface. There are also redundant power supplies on both the console and the stage rack.

The standard Stage Rack provides 48 mic/line inputs and eight line outputs that can be expanded to 24 if required. The pre amps are the same as all the D-series. The console can also work with any of DiGiCo's D-series stage boxes to allow specific configurations of I/O if required. There is also 8 mic/line inputs, eight line outputs and 8 AES I/O on the console itself for anything like monitoring, external effects units, or talk back mics.

New to the SD8 is the 20-LED metering bar graphs next to each fader for whatever that fader is controlling at that time, be it inputs, outputs, auxiliaries and so on. This offers much better metering than most live mixers, and is a view we are all used to. To keep a tab on all the tracks, both in and out, an overview screen can be connected.

With the digital MADI connections, it allows the SD8 to be completely integrated into any setup with networking. i.e., you can have one stage rack being shared by two consoles, one for FOH and one for monitors.

No need for splitters or pre amps drawing too much signal. What I really like is the ability to control remotely the surface via a laptop so any parameter can be controlled from anywhere in the venue for fine balancing. As the software for the desk is built on an embedded Windows XP operating system, you can network any laptop or PC to the console and install the same software as on the console for complete control. Not all desks offer this solution so easily. The software can also be used offline. This would suit touring engineers who want to make prior changes to a show's settings or automation due to a change in the set, for example, before they even arrive at the venue. Show settings can be loaded on and off the console with any USB memory device.

### In Use

My first impressions of the desk was how well it could be configured to fit in line with standard ways of working without getting into too many complicated levels of preferences. DiGiCo has researched many desks, how engineers want mixers to work, along with many industry requirements, and has managed to deliver something that anyone would be comfortable to operate. Whether you're an analogue/digital or a Yamaha/Midas-based operator, there are many functions and preferences in the SD8 that will follow on from your background to put you in your comfort zone.

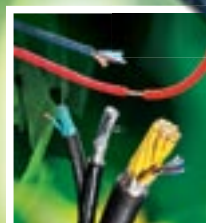
The desk can work as virtually and as digitally as you like, but also offers a straightforward layout from default. For instance, I really like touch sensitive faders, but some engineers find this annoying as they find themselves catching the wrong controls, and on the SD8 this can be disabled. It is the small attention to detail that makes this desk very comfortable to work with. Another example of this is the position and layout of the EQ and dynamics, which can be altered without looking. The desk is very flat and there aren't any upright screens, keeping you in tune with the action on stage.

The four-band parametric EQ on all inputs and outputs operates very smoothly and as you would expect. The colours make it easy to identify settings at a glance, and it sounds great with lots of headroom. Dynamics on each channel consist of one compressor and one gate. These are great dynamics, and DiGiCo has stuck with just the one choice of compressor



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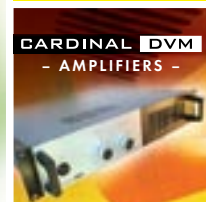
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as a good all-rounder because it is exactly that. DiGiCo has very much gone for the approach to provide a unit that can do everything, and everything well. All the expected functions are there such as side chain inputs, order of EQ-Dynamics processing, etc, as you would expect from a leading manufacturer.

There is clearly room with the SD8 for updates in the future, both software-wise and hardware, as the current desk has some controls on the worksurface not in use yet. Apparently DiGiCo is also working on optical connections as an optional extra. There is already a great selection of reverbs on the desk, but again it is clear they have left room to add more effects. The choice of reverbs, I was really pleased to hear, ranged from typical reverbs that would sound great on a large PA, but the SD8 also offers some more studio sounding reverbs. This is really exciting as you can literally build your 'space' very accurately when engineering live. Of course these more natural reverbs are also suitable for broadcast or recording purposes.

Everything is in this desk and is very easy to find. I really like the routing, which is very similar to the analogue format. DiGiCo hasn't tried making things too clever. The menu home page is labelled clearly, and doesn't take long to find what you want to achieve. The desk can be used as simply and as straightforwardly as you like, or set up and configured as any professional would need. I think it's great that a digital desk can

be turned on and used as a mixer very quickly, and then built upon rather than getting into preferences and menus all night long. Too often some of the new bits of kit can easily distract us from the stage.

I love how the in-built graphics operate with the iPhone-style scrolling. There are 12 x 32-band graphics that can be assigned to any input and any output, giving you plenty of control. The Snapshot automation DiGiCo has written is very intuitive and contains all of the features you would expect. I think the labels and terminology DiGiCo has used are great, and will relay for music shows and theatres very well. Using the 'Offline' mode, snapshots can be created / edited on the surface without affecting the audio. With features such as global and snapshot-specific recall scope, a comprehensive crossfade capability and DiGiCo's clever 'relative' snapshot mode, make the snapshot automation a joy to use as every eventuality has been covered.

## Conclusion

This desk is more open to integration with other equipment and systems than some of the other desks now on the market. It lends itself to engineers who want to build their system and work with their favourite bits of kit more naturally than some of the other solutions that try and offer you everything on the surface. There is a really great layout on the desk with all the controls

working around the central touch screen, always keeping your eyes on the action rather than on menu pages. It is very easy to use and will work in all situations with less effort than most digital mixers. Monitor engineers are really going to like this desk with its two solo and 24 mono or stereo output busses, making it perfect for several wedge & IEM mixes. This is a great all-rounder that will provide the heart for any live tour, venue, broadcast truck, or theatre, and the price is going to continue the already good sales record. **1A**

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# THE LAST PICTURE SHOW

A Visit to Edinburgh's Picture House

The Scottish capital's got a brand new venue – production-ready to boot, and German proto-synthmeisters Tangerine Dream are amongst the first to play there. JONATHAN MILLER sounds out The Edinburgh Picture House.

Built upon extinct volcanoes atop the Firth of Forth – a North Sea inlet, for the benefit of those not in the geographical know, the City of Edinburgh undeniably boasts one of the most beautiful cityscapes in the world, with its namesake castle – Scotland's most famous – dominating its skyline. Yes, the Scottish capital's 444,000-odd citizens have much to sing and dance about, and now, thanks to the sterling restorative and upgrading work of owners MAMA Group, they've got another licensed music venue in which to do just that (as also have the million or so annual visitors that make Edinburgh the UK's second most popular tourist destination after London). Ladies and gentlemen; thank you for being patient; please welcome... The Picture House!

## Look Mama

Billing itself as a 360-degree music business, MAMA Group Plc. was founded in 2002, focusing on music and media businesses. As such, the Group currently comprises three divisions. Live Music includes the Barfly network of live music venues, plus the Hammersmith Apollo, Jazz Café, The Forum, and The Borderline, all in London; as well as holding interests in live music events, including the Lovebox Festival. Artist Services include artist and producer management, music publishing, merchandising, and investments in recording businesses; and Consumer incorporates *The Fly* (one of the UK's most widely distributed music magazines), Campus Group – a collection of specialist media and marketing agencies working for clients interested in the student and wider youth audiences, plus a

ticketing business. Meanwhile, MAMA's Music and Media Solutions sideline is responsible for all brand partnerships activity, uniquely positioned to integrate and deliver a variety of brand objectives across the Group's stable of assets. Simply states John Stout, newly appointed General Manager at The Picture House: "It's an integration that works."

Indeed it does – with a good deal of success, hence the MAMA Group's most recent addition to its Live Music venue portfolio: the 1,500-capacity Picture House that had begun life on Edinburgh's Lothian Road back in the 1920s as a cinema, appropriately enough. "It was opened in 1923, I believe," Stout continues. "Later it was used for live music as well – particularly throughout the Seventies, though it certainly had quite a lot of bands coming through its doors in the Eighties, and then later it was taken over and transformed into a nightclub. So we've taken those things away – the nightclub infrastructure, if you like, and installed a live music infrastructure in its place."

Not only infrastructure in the architectural sense of the word, but also in terms of installing and stockpiling a healthy selection of sound reinforcement equipment to create a state-of-the-art, production-ready venue ideally suited to the type of visiting performers that Stout – previously responsible for programming all non-classical music at Edinburgh's Usher Hall – is primarily employed to attract. "It is production-ready," he concurs. "There's full sound and lights already in the venue. We can adapt quite



readily to touring artists, whether they want to use their own desks or not. But it's not just a rock 'n' roll venue; I think that will become more apparent next year, even though it's got the feel of a rock 'n' roll venue – albeit a very nice one."

Nice venue, nice city. A winning combination, surely? Sure. At time of writing, a quick glance at The Picture House website reveals bookings confirmed through to mid-April 2009 (when seminal space-rockers Hawkwind are coming to town). Yet that same website warns: "Due to the compact and historic nature of the centre of Edinburgh, this venue is strictly tip-and-go, and use of in-house production is required to minimise loading."

## Ready Steady Rock

Any artists or representatives thereof possibly interested in including The Picture House in their touring itinerary are, likewise, catered for online with webpages listing production, sound, and lighting information. The chances are the sound reinforcement equipment on offer should more than do them justice: FOH speakers listed include 14x L-Acoustics ARCS (constant curvature line source), including flyware, plus six accompanying L-Acoustics 218 subwoofers, powered by six L-Acoustics LA48a and three Chevin Research A6000 power amps, and overseen by two XTA DP224 loudspeaker management systems. Similarly, FOH outboard is reasonably well catered for with a Klark Teknik DN360 graphic EQ sharing rackspace with two Klark Teknik SQ1D Square ONE eight-channel dynamics processors, two Yamaha SPX1000 digital multi-effects processors, and a TC Electronic D-Two multi-tap rhythm delay. Meanwhile, more outboard can be accessed 'virtually' via the venue's desirable Digidesign VENUE D-Show Profile and Mix Rack combo, while a 40-channel Midas Heritage 1000 analogue console provides a more traditional FOH mixing alternative for anyone wishing to bypass Digidesign's digital bells and whistles...

A 32 mic input Midas Verona 320 analogue mixing desk capably handles monitor duties, with outboard from KT (four DN360s and another SQ1D Square ONE) and Yamaha (SPX990 digital multi-effects processor), and amps supplied by Dynacord (five CL 2000 2x 1000 Watts Linear Precision and three LX 1600 2x 800 Watts Switchmode Precision power amps). Other notable monitor equipment includes eight NuQ-15 full-range, two-way, switchable active/passive loudspeaker systems, and three XD-252 switchable bi-amp/passive full-range loudspeakers from Turbosound. The microphone stock includes a healthy selection of (mainly) Shure stage mics, together with two Sennheiser MD421 dynamic microphones, and four Beyerdynamic M 88 TG dynamic microphones.

Says Stout: "It's very useful to have that quality of equipment in-house; it makes planning things a lot easier for artists coming here in terms of integrating what they've got on tour with them, but, importantly, the sound is excellent for this space and the acoustic that this space has."

Expanding the theme further still, Stout adds, "The idea is that we will make it easy for whatever artist to play here – whether that be a band that is touring with two or three buses and a truck,

or something as simple as a vanload of backline, so a wide range of artists can quite easily fit into what we have here."

## Back To The Future

Who better, then, to put this theory to the test than German proto-synthmeisters Tangerine Dream, amongst the first wave of established acts to step through The Picture House doors to play their first Edinburgh concert in 18 years on November 2.

64-year-old founder Edgar

Froese certainly knows a thing or two about quality concert sound, having played some notable venues during his pioneering band's 40-plus-year career, a career that saw them turn early on to Martin Audio to match their high expectations. "Martin, I guess, made the first exponential system, producing two things which were at the lower end of the bass," recalls Froese, adding that Tangerine Dream's then-trademark Moog modular synths were prone to kicking out some extreme low frequencies onstage at the time. "I'm not talking about subwoofers here – everybody knows what subwoofers are, but rather sharp, strong, and powerful bass, which is part of the normal bass structure; Martin came up with a very specific idea of building huge sidefills. I tell you, it was like having your home stereo speakers onstage! It was a unique sound – the combined sound of everything happening onstage, so we didn't even have a FOH mixer, because it wasn't needed! Whatever we heard from the sidefills on the left and the right was reproduced into the hall, so there couldn't be anything wrong. It's hard to imagine today, but it was perfect, because you could adjust the balance of your instruments onstage and hear it immediately, and the audience heard it, too."

"Sidefills are still better than any stage or in-ear monitoring system, but they only make sense if they're built for your own specific needs. They make sense if you're touring a lot, but if you're only playing a few gigs a year like we do now, then it's a bit too expensive to spend about £80,000 or whatever for a proper stereo system onstage. Even today I sometimes wish that I could have some of that old equipment."

Today those mighty modular Moogs are also long gone; today Tangerine Dream is playing The Picture House with a more reliable, though no less cutting-edge selection of instrumentation at Froese's disposal, including various plug-in synths displayed on large LCD screens for the audience's benefit, together with more 'conventional' instrumentation professionally played by the considerably younger musicians – Thorsten Quaesching (keyboards), Iris Camaa (percussion, Codo drums, V-Drums), Linda Spa (saxophone, flute, keyboard), and Bernhard Beibl (electric and acoustic guitars) – augmenting the truly independent group's guitar- and keyboard-playing sole survivor.

## Closing Comments

Unsurprisingly, perhaps, the forward-thinking Froese sees only sense in production-ready venues



like The Picture House. "In the future, the normal situation a band will be faced with is that you move into a production-ready venue," he predicts. "The facilities are there, and at the end of the day, it's much easier for the venue and the band. You have less equipment, less expense, and, for the venue, it's great to be able to say to a production manager or band manager, 'Come on in; bring your backline, personal belongings, instruments – whatever you use, and it will fit'."

"The equipment is usually state-of-the-art, and it sounds good; the lighting is okay – not always what you want, but it saves a lot of money and energy for a mid-range band. Instead of having to hire five or six trucks, you just hire a night-rider [sleeper coach] and put your backline under the seats. That works pretty well wherever, and, I guess, is the future of performance structures up to three-, four- or five-thousand people. Above that, you'll need extended forms of PA; but I love the production-ready philosophy. I love anything which makes life easier, to be honest. Life's complicated enough in itself!"

Sound-Linear Elektroakustik GmbH's Kalle Hogrefe, acting as Tangerine Dream's FOH Engineer on this particular UK outing, is possibly better positioned to comment on The Picture House sound. "The acoustic in The Forum was not as good as in here," he begins, before adding: "The sound system here is okay; the desks are fine; the service guys are great." Arguably a man of few words, then; yet you can't say fairer than that, probably.

On that very note, General Manager John Stout certainly doesn't have grounds for complaint, concluding, "A lot of artists were just bypassing Edinburgh, because there were a couple of venues here half our size, then it's twice the size; so a mid-scale venue was something that was definitely needed – hence the reaction has been extremely positive, but not just because we're fulfilling a need. Across the board from journalists I know, artists that have played here, and the audiences, everybody has been incredibly positive so far, which is great."

## INFORMATION

- ① The Picture House, 31 Lothian Road, Edinburgh EH1 2DJ, UK
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### Xmas/W1nner5

Although Christmas is over, and the seasonal cheer is slowly dying along with the arrival of credit card statements and the renewal of gym memberships, Audio Media is still happy to play Santa and hand out the prezzies to stretch some festive cheer a little further. And we've got three huge sacks ready to be shipped out to the winners of the 2008 SWAG Competition, who correctly answered that *Quantum of Solace* was the film on the cover of November's magazine.

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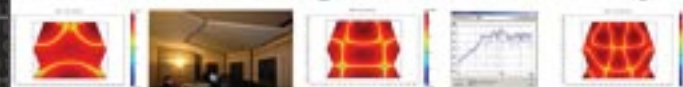
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# THE INTERNATIONAL BUYER'S GUIDE

A SPECIAL PROMOTIONAL PUBLICATION FROM THE NEWBAY MEDIA GROUP

# RECORDERS 2009

PRODUCED BY

**AUDIO** MEDIA

In association with:

**Radio World**  
INTERNATIONAL EDITION

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## Welcome

Welcome to *Recorders 2009*, an international Buyer's Guide. We've been busy rooting around the professional recorder ranges to bring you a healthy stack of options in the recorder genre.

This publication is a collection of promotional articles looking at nine of the world's leading recorder manufacturers and their product ranges. Inside you'll find the stories behind the gear – the ethos' and design ethics that go into producing one of the key components in professional audio – and plenty of info on the products themselves. In addition we've collated a directory of professional recorder manufacturers and commissioned two articles around the subject of recorder technology and technique for the audio pro.

Even through the rise of the DAW, the need for reliable, high quality, and feature-rich recording devices has never gone away – as confirmed by the recent peak in new models, especially for the location recordist and audio journalist. New media types have accelerated development and now you can choose CD, hard disk, DVD, and solid state types to suit your needs and your budget. There's also a vast array of audio file formats to handle, each one bringing the benefit of choice in data economy, audio quality, archive suitability, and more.

Even newspapers and other print-based media are finding the need for suitable recording devices now that podcast and multimedia channels are becoming a necessary part of everyday content provision.

Are you a Foley editor? Are you a production recordist? Are you a new media journalist? Are you a broadcast professional? Are you a sound designer? All of these roles and more require the best in recorder technology to make your job easier and your results better. Do you know what functions, facilities, and frills are available nowadays? Wouldn't you like a large choice put right in front of you, rather than starting your hunt through the normal myriad of sales and dealer channels? This guide is the place to start your recorder shopping spree.

*Recorders 2009* is a collaborative project between several NewBay titles: *Audio Media Worldwide* ([www.audiomedia.com](http://www.audiomedia.com)), *Pro Audio Review* ([www.proaudioreview.com](http://www.proaudioreview.com)), *TV Technology* ([www.tvtechnology.com](http://www.tvtechnology.com)), and *Pro Sound News US* ([www.prosoundnews.com](http://www.prosoundnews.com)). All of these publications concern themselves with the business of production and production technology for professional creatives, operators, technicians, and engineers everywhere. Visit their respective websites to find out more.

The NewBay Team

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# Function Guide

## Asking The Right Questions



Alistair McGhee muses the key questions you should ask before purchasing a portable recorder.

In today's complex market it's worth sitting down and working through a few features before parting with your hard earned. There's a bewildering range of machines available, and hacking your way through the forest of features and specifications will pay dividends in the long run.

### Storage

Compact Flash and SD cards are both big players here. You could argue that SD card will have a longer future as a more compact medium, and there are signs that SLR cameras are moving to SD from CF, but there's not much in it there. You can argue that it's possible to bend the pins in a CF socket, but there is a case that CF is a medium less easy to lose and more label friendly. Some machines offer fixed storage, either Flash or hard disk-based, with hard disk ushering in the professional world for the most part. If spinning silver disks are your bag, then you can still source a CD recorder or a direct to DVD machine, but these are not widely available.

### Post Record

The next question is closely related to the first one. What sort of post recording workflow do you have? Virtually every machine can be connected over USB or Firewire to transfer the contents to your editor of choice. If you work remotely you may want a machine that includes Ethernet and ftp built in. Some machines offer higher data integrity with onboard backup to hard disk. It's even possible to make duplicate simultaneous recordings for those of us who like to test our baths with litmus paper. Other options include end of the day back up to DVD and copy from internal Flash to SD

card. To close this section, consider if you want some sort of auto pre-record function where the audio input of the machine is continuously routed to a buffer so you never miss that quote. And if you do want that feature, you'll want to check the buffer time at all the data rates you'll be using.

### Question Of Quality

Data rate and audio quality are related (though not exclusively) and your project will have parameters you want to meet. Do you need 24-bit operation to ensure quality through subsequent post production, or do you need to record in a compressed format to reduce upload times to your media server? Some machines will offer high sample rates up to 192KHz, and even several MHz if you want a DSD recorder, while other options include mp3 and mp2 recording to maximise storage and compatibility with your broadcast playout system.

### I/O

Once you've sorted out the medium and the data/audio formats you want to use for your message, it's time to think about inputs and outputs. If you want professional mics then you'll need XLR inputs and phantom power. You'll be looking hard at the physical robustness of the machine. Large XLR connectors can apply significant bending forces to a panel, and you'll want them to be solidly mounted to a substantial chassis. If it's built-in mics you're after, then you need to choose carefully. Are they isolated from any mechanical noise, can they take a windshield for working outside? And what about stereo, or do you need more of a reporters stick mic-style recorder that you can use essentially like a mic with a built-in

recorder? Before leaving the subject of mics, it's worth saying something about mic amps. Every machine has them, but not all mic amps are created equal. If you intend to use dynamic mics and want quiet recordings, you'll need low noise mic amps. Also if you want to record programme material with a wide dynamic range, you need mic amps that offer plenty of head room. Are you recording on the hoof? If you are, a good onboard limiter will often save the day. On the other hand, if you want bomb-proof recording without paying much attention to level setting, you might want an AGC circuit that produces a usable recording without any manual tweaking. And if you're doing serious music, you may want M/S facilities alongside the more normal A/B format. Finally, how many mic amps do you need? One is plenty for a reporter mic, but eight may only be just enough if you work in film

### Interfacing

It could be a sub section of I/O, but it's worth talking interfaces. Do you need a five-pin XLR for a stereo mic? What about a line input on a reporter's machine to tap a phone or plug into a PA system. Some machines offer digital outputs, will SPDIF be enough or do you need AES/EBU? Because machines are small connector space is at a premium, is the manufacturer sneaking in a few non standard connections? Do you get headphones on a quarter inch jack or just a mini jack or both, which would be nice.

### Power

Powering arrangements may seem decidedly unsexy, but for the portable recorder they are a real deal breaker. Can you use rechargeable batteries to keep

your costs down? But what about plugging in some AAs when you're stuck far from the mains charger? What about the option of plugging in external batteries like the standard NP1 format? And what about onboard charging? How does phantom power impact on battery life, and will you get a whole eight hour day out of a set of batteries? How steep is the curve at the end of the batteries life – do they die in just a couple of minutes leaving you high and dry? And how much is a set of spares? You may be tempted to worry more about bells and whistles, but remember modern bells and whistles work by the magic of moving electrons and neither bells nor whistles will work if you have no power. Some manufacturers have bought into 'standard' video recorder batteries, so getting you away from proprietary and hard to find batteries and chargers.

## Ergonomics

Ergonomics is a huge can of worms and needs to be broken down into sections. Let's start with the mechanical questions. First how heavy is it? If you want a hand held recorder, how easy is it to hold in your hand? And how much mechanical noise gets through to the mic head? Is the display easy to read when pointing it – in fact, is the display easy to read period? Do the controls fall easily to hand? Some machines put transport functions on the top of the machine where they're hard to reach when the machine is cased up. What is the case like, or in fact, is there a case? Do you need one? Is it waterproof? Has it room for you mics/batteries/headphones and chocolate biscuits? How heavy is the machine, and how bulky? I picked a professional Canon digital SLR the other day – it's bigger and heavier than my 120 film cameras. What happened to 'small is beautiful'? Are the controls finger-sized and easy to operate? A big bugbear of mine is the dual concentric volume controls that make it impossible to adjust input levels separately.

Can you work the machine with gloves on? Some recorders are designed to be used in extreme conditions, and in some places you can't work without gloves. What about the build quality – is the case metal or plastic? Do you feel you could drop it, and it might still work? Is changing the battery easy, and can it be done quickly?

## Screen Scene

In a digital recorder, a huge amount of interaction comes through the screen. A colour display is nice, but make sure the display presents the information you need and is easy to read at your normal working angles. The metering is key, and it's nice to have metering not just on the display (unless the display is very good) but also duplicated on some easy to read LEDs. On a heavy duty machine, you want to be able to see lots of information at a glance: phase reverse, MS decoding, limiter function, phantom power, bit rate, sample rate, daily rate – you want an interface that reflects these things without being cluttered. There comes a point on a small screen where you have so much data that you can't read any of it. On a reporter's recorder you probably want just the few key messages, like level, record, duration, and time left.

## Software Support

If the Windows/Mac thing has taught us anything, it's the importance of software interfaces. In a modern machine it's worth considering the menu structure separately. All machines have menu choices and options, and how they're presented will be an intimate part of your experience of the recorder. All in one big list is easy to navigate, but can be dull to use and make it easy to miss something in the midst of all the options. Grouping stuff in pages can make the listings less daunting, but can hide key features a long way down, and make it hard to set up a recording quickly. Unless of course you can switch between

user set ups or memories. There's a certain amount of personal preference going on here, but if you pick up a recorder and find navigating to the bitrate option a chore, then if you use that machine every day for two years, then that chore will either become second nature and you'll end up thinking all machines should be built this way, or you will resent the idiot designer with a perfect passion. And the funny thing is you can't tell which it will be. Personally I think we have a way to go here. I suggest you pick up an iPod Touch and navigate round it for a half an hour before trying out a prospective purchase, there really is more to soft ergonomics than up/down, enter, and cancel.

## Frills

Some modern recorders will have onboard DSP that you can use to fiddle with your sound. That's on top of the traditional filtering we've had for years. So can you roll off the bass when working outside? Can you change the roll off rates and frequencies? Can you pan the inputs and phase reverse them if need be? What about the more bizarre options like reverb – do you want to make everything you record sound like it was done in a large public toilet? I know I do.

To be honest, this isn't a comprehensive survey. There are a million little things (from how loud will the machine drive your favourite headphones, to whether the gain structure has multiple points of intervention) that I just don't have room for, and I'm bound to have missed out something you feel is important. And therefore the most important thing to do is that when you've read the list, and talked to people who have used the machine you're interested in, then get your hands on one to try. It really is the only way.

# On Location

## On The Fly With Portable Recorders

Jerry Ibbotson reflects on over sixteen years in the field with an array of portable recorders – and what worked, and what didn't; those lessons that could only be learned from sometimes painful experience.

It's an evening I remember well, even sixteen years on. I was standing outside one of the University buildings in Exeter, where I'd been hoping to interview the eminent educationalist, Ted Wragg. But something had gone a bit wrong. My Uher sound recorder was lying on the ground with a broken shoulder strap and the case at a funny angle. As I took a step towards it, a searing pain shot up my right foot. After one very uncomfortable drive back to the radio station where I worked, I pulled back my sock to reveal an ankle bone that was also at a funny angle. My, how I laughed.

You just don't get this kind of anecdote from a microphone. And how many people have told a doctor in casualty that they broke their ankle under a pair of headphones, then watched them stifle a laugh? Whether you're a radio journalist or a top notch film sound recordist, the bits of kit you sling over your shoulder or carry in your bag become part of you (in that Uher's case, almost literally).



Alex Joseph capturing the sound of meat.

### The Speed Of Progress

Look how far we've come in recent years: from hefty reel to reel beasts fired by lead acid batteries and running on pulleys and cogs, to super-lightweight electronic wonders with no moving parts, but more menus than Gordon Ramsay. Yet still, a decent portable recording machine becomes the foundation of what we do; if what we want to do is get out of the studio and capture sound out there in the real world.

Huw Williams has been working in BBC Radio New for sixteen years. Like me, he started out on the dreaded Uher; a machine so hefty it created its own medical condition: Uher's Droop. "In the old days you could easily spot a BBC reporter," Huw said, "We always walked with one shoulder held much lower than the other, because the reel-to-reel tape recorders we used back then were so heavy. And you could only get fifteen minutes of recording time on a tape. But they were pretty idiot proof. I remember once when I worked for Radio Leicester being out on a job at Rutland Water, and discovering that my Uher didn't have a take-up spool. But I just went ahead and recorded anyway, letting all the tape run onto the floor. It might not have looked very professional, but it worked perfectly. For some reason the Uhers in brown leather carrying cases always seemed much better than the ones that came in the alternative black cases. I'm not sure why that was."

### The Beginnings Of Folklore

There's no logic in that last bit, but I know exactly what he means. When you rely on something day in, day out, you do

start to create a certain folklore around it. I remember reporting from the American trial of the British nanny Louise Woodward, with one of the most violent media feeding frenzies I'd ever seen taking place outside the Boston court house. But I had my magic armour, in the form of a BBC 'scrum kit' Sony Walkman Pro cassette recorder. The scrum kit was what we were given for 'tricky situations'. You could flick the Walkman on and be pretty sure you'd get something, no matter how excited the other hacks and cameramen around you got. In this case, it managed to record the sound of a moving, writhing pack of despicable journo's devouring everything in its path, including a live TV broadcast by CBS. This is the kind of bar room tale that surrounded the scrum kit. The stuff of legend.

### On The Hoof

Film Sound Recordist and effects guy Alex Joseph has many a tale to tell about recording on the hoof. "On one occasion while up on Mount Snowdon's summit, I remember using a Fostex recorder. We had got a friend in the business to make a pouch with a clear plastic visor, so that we could see the levels while giving it some sort of protection. We were recording various locations round the UK for a CD and for library purposes. When we got to the top of Snowdon (by rail, which we also recorded) the weather was so bad that it wasn't just a case of getting rain in the recorder, the atmosphere up there is thinner and you're in clouds! The problem with that, of course, is that the condensation gets through any materials guarding the recording device. So the only solution for us



Jerry Ibbotson at the office.

at the time was to tuck the recorders inside our coats (which happened to be Gortex), and this shielded them from the moisture.

"Another bugbear while on this recording was what to do with a recorder while on a rickety mountain train. I got fed up with hearing the clacking of the recorder strap as the train juddered, that I got the gaffa tape out and strapped the recorder to the inside of the train. Problem solved."

## Ears 'Ear Better

A couple of years ago, I listened to a talk given by a wildlife sound recordist, who explained his approach to setting the right recording level out in the field. He uses his ears, rather than looking constantly at the level dial. First he plays a piece of music that he knows well, through his machine, and sets the headphone volume level to something he's comfortable with. He then takes the headphone knob off! Then he adjusts the recording gain so that any source (like waves crashing on a beach) sounds okay in his cans.

As you use a particular machine over time you tend to get more and more familiar with it. Key buttons and switches fall to hand in a second, and the whole thing takes on the air of a well-worn shoe. I know not to bother with the rechargeable pack for my Marantz PMD 671, because that means taking out the dry cell battery holder which will, naturally, get left on the desk in the office and not be in my bag when the rechargeables run out in a field. If I run it on Duracells, at least I can run to a garage and buy a set of batteries.

I've also become aware of any foibles it

might have. Like knowing better than to try and crank the mic gain too high. If something's so quiet that it needs more than 5 or 6 on the rotary dial, I'll leave it at five and be done with it. It's almost instinctive to try and get every sound peaking at the same level, but why on earth would you want gentle birdsong as loud as a steam train? Yeah, it's from the book of the blinking obvious, but there are plenty of sound effects libraries with hissed-to-the-max samples of the dawn chorus. Record sounds as they would be heard.

There are issues with hard disk-based machines. When recording loud vehicle engines in a space without a separate 'monitoring room' (that'll be a workshop then), a hard disk will protest as the noise levels rise and the machine gets battered by the pressure from the sound wave. But next generation problems bring old school solutions: standing in front of the recorder helps alleviate the problem, though it might not do wonders for my kidneys.

## Pecking Point

There is a definite pecking order to portable recorders, or at least there was in the old days. While mere hacks used to slum it with the Uhers, the la dee dah types at the posh end of radio or in film would swan around with Nagra. My friend Kevan O'Brien, who has done a whole stack of jobs in broadcasting, once went all glassy eyed over a Thai meal while recalling the little hydraulic legs that used to prop up the case in a Nagra reel to reel machine so you could get to the insides. It's that folklore thing again.

Things are different these days. As I said in a recent column for *Audio Media*, it's become a slightly more level playing field as technology has progressed. Of course the top end machines are still there, reclining on their silk pillows, but for us mere mortals, there's a plethora of excellent kit to choose from. Huw Williams has moved on from the Uher, via the trusty Minidisc, to a Nagra

Ares-M. "The best thing about it is that the laptop I use to edit on sees it as an external disc drive, so I can just drag and drop WAV files across into Adobe Audition. Its biggest disadvantage, though, is that once it's full, it's full. So the only way to make space for new material is to archive stuff you've already recorded onto the laptop, or delete it, because there's no way to remove, and keep, the drive."

But in ten or twenty years' time, will we be waxing lyrical about digital recorders? Well, I already evangelise about the baby Marantz PMD620 that I should have sent back to the UK importers weeks ago. It's reached a point where I don't just see it as a piece of hardware, but as a part of the team. Yes, I appreciate I should get out more, but in the last week it's recorded some really useful sound effects like a shower door opening and closing, and Foley elements like hands grabbing door frames in a drunken manner (the sound that is, not the recording).

Alex Joseph is on the same wavelength: "The things I'm really impressed with these days are the new generation of portable recorders, I have access to a Zoom H4 and have found it very useful in guerilla recording, especially for Foley. I found it invaluable myself on *Quantum of Solace*, as it meant I could sneak off to disused sets with others to record gantry sounds and strange noises very quickly. Gone are the days of replacing DAT tapes, or charging up stupid amounts of batteries that never last long. Bring on the hard disk high sample and bitrate mini recorders, then I'll have much less to worry about on boats and up mountains.

Still, there was a definite mystique about the old school tape machines. As radio reporter Huw Williams puts it, "When we used to turn up with Uhers, we definitely looked like Reporters From The BBC. Nowadays we just look like people who've been to Currys or Dixons."

But they're never going to break my ankle are they?

# The Award-Winning Range Of EDIROL Field Recorders

From the highly innovative R-09HR to the compact and lightweight powerhouse that is the R-44, EDIROL offers a field recorder for every occasion, whether it be capturing classical performances, recording interviews, soundtracks to video, or even rock concerts on Everest...

EDIROL is a world-leading company that manufactures exceptional computer-based audio and video presentation products, as well as a market-leading range of field recorders that have won awards for innovation and design excellence. Here we detail the professional four channel models plus the ultra compact and ultra-cool R-09HR...

## EDIROL R-4

The R-4 is the first of EDIROL's professional four-channel field recorders. The ability to record up to four channels simultaneously gives you flexibility in any recording situation. Selecting four channels rather than two gives users the ability to capture more ambient sounds at a concert as well as the main performance, or it allows them to place mics on multiple participants during, say, a recording for a video soundtrack.

The R-4 has a wide range of other features including on board waveform editing, superior sound quality, and

40GB of storage for up to 58 hours of CD quality. Looking beyond CD quality, the unit offers even greater sonic resolution because you can choose 16-bit or 24-bit quantisation and a sampling rate of 44.1kHz, 48kHz, or 96kHz. Even at the maximum 24-bit/96kHz, you still get an incredible 17 hours of recording time.

Other features on the R-4 include an on-board limiter to ensure clip free recordings and a Pre Record function so help avoid missing vital, time-sensitive recordings – if you think you have missed that sound bite, fear not, because the R-4 will have it captured! There are comprehensive EQ sections, a noise gate, de-esser and compressor, plus connections for a wide variety of media including XLR/phone combo jacks. Finally USB 2.0 support means on board audio can be backed up to Flash keys, memory cards, or onto the drive of a connected PC or Mac.

The R-4's compact size, light weight, rugged design and price of just GB£878.88 have won it homes in many prestigious companies including the BBC, and it is being used in a wide variety of industries and locations around the world.

## The EDIROL R-4 Pro

The R-4 Pro is the next level of professional field recording. Again it offers up to four channels of simultaneous recording, but adds an expanded feature-set and more storage capacity compared to the R-4. The R-4 Pro accepts SMPTE time code so it can easily be sync'd to video equipment as the slave device. It's a great function for video production as up to four channels

of high quality audio (again, up to 24-bit/96kHz) can be fully synchronised with video. In addition, the R-4 Pro can also act as the master, sending out time code to slave devices.



The R-4 Pro is a fully featured field recorder suited for the video industry and recording anywhere in the world, even on Everest!

The R-4 Pro comes with an 80GB drive installed which is enough for more than 100 hours of audio at 16-bit/48kHz, and well over 30 hours at the unit's maximum resolution. The R-4 Pro is equipped with a 4-pin XLR DC input to enable use of Anton-Bauer style external battery power and also has XLR style AES/EBU digital input and output.

Like the EDIROL R-4, the Pro features wave editing, recording resolution selection, pre-buffer recording, effects and a limiter, and is also USB 2.0 compatible so you can transfer and back up files to a computer.

For video production, the original R-4 is still easily the most affordable and effective choice for the existing SD camera base and the growing number of HDV cameras that are not equipped with time code. It is still the only four-channel solution equipped with LANC



The EDIROL R-4 offers four-channel flexibility and high quality field recording at a great price.

## The EDIROL R-09HR

Portable field recording doesn't get cooler than this! The R-09HR is EDIROL's latest ultra-compact field recorder. It's a stereo WAV or MP3 recorder that is capable of delivering crystal clear 24-bit/96kHz fidelity. It features a groundbreaking



The EDIROL R-09HR fits in your pocket, is light, solid and has a powerful set of features.

Isolated Adaptive Recording Circuit, which is a dedicated analogue circuit optimised for recording with the R-09HR's onboard A/D converter. It helps eliminate DC interference between components in the R-09HR, resulting in super high-quality and low noise recordings.

Other features include a pro-quality stereo microphone complete with a dedicated analogue input control, low-cut filter, limiter/AGC (Auto Gain Control), and gain boost. The on-board electret condenser microphone elements are compact, ultra-sensitive, and placed to capture three-dimensional sound

naturally and accurately.

The R-09HR features one of the best small screens around in the form of its user-friendly OLED (Organic Light-Emitting Diode) graphic display. The large display provides a wide view with easy-to-see level meters, peak indicators, and additional recording information on screen. One of the cleverest features is a built-in preview speaker that allows instant playback of the recorded sounds – no headphones required! With the included wireless remote controller, transport functions can be accessed from a distance and the R-09HR can connect to computers via USB 2.0 for importing/exporting audio files quickly and conveniently.

The R-09 HR is small enough to fit in a shirt pocket so travels light but its rugged, easy grip design and powerful feature set mean that it performs like a heavyweight. The R-09HR retails for GBE292.64.



capability as an alternative way to sync to non-time code equipment. The new R-4 Pro price point of just GBE1,467.11 competes with many two-channel solutions with fewer features!

The R-4 Pro is being used for many wide-ranging tasks around the world, and has even been used to record a band playing on Mount Everest – now that is field recording in the extreme!

## The EDIROL R-44

The R-44 is EDIROL's most compact, powerful, and lightweight recorder yet.

It is a four-channel unit that offers very flexible recording options with up to four channels of uncompressed audio available at selectable bit depths (16- or 24-bit). You can record with sampling frequencies between 44.1kHz and 192kHz (stereo mode only), and the recorder utilises SD or large capacity SDHC cards – proven solid-state



The EDIROL R-44 is EDIROL's most compact four-channel recorder and features SD storage for a lightweight design.

storage media for the ultimate in quiet and reliable recordings – which result in its compact and lightweight design. In fact, the recorder weighs in at just three pounds and supports both XLR and 1/4 inch TRS jack inputs – the XLR inputs come equipped with individual phantom power as well as a limiter. Eleven steps of input sensitivity enable the connection of multiple devices with a variety of input levels from microphones to musical instruments. The high-speed USB 2.0 port allows you to copy and archive your captured audio to a computer quickly and easily.

As if that feature set wasn't enough, the R-44 also offers comprehensive effects, including limiter, low-cut filter, 3-band EQ, 6-band GEQ, enhancer, and de-esser, making it the ideal high-quality recording solution for engineers, journalists, sound designers, and

bands to take anywhere. It retails for GBE635.19, so is not only the most compact of the R-range, but the most affordable too.



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FOSTEX



# Professional Audio Recorders



Audio recorders trusted by professionals for over thirty years.

Solid state recorders is a product category in which Marantz Professional has led the field, since the introduction of its first model in 1999. The company currently boasts a coherent product range comprising seven PMD models, including handheld, portable, and rack mount variants. With the latest addition of the PMD580, Marantz has introduced fully-fledged Ethernet LAN capabilities to the range, providing workflow integration benefits in conjunction with the convenience and operational advantages offered by CompactFlash media. The combination of CF media and the feature set of the Marantz PMD recorder range offers unique benefits across all manner of broadcast and professional audio applications.

## PMD570/PMD580

The PMD570 and PMD580 are professional 1U rack mount Compact Flash memory card recorder/players, providing non-linear recording, playback, and editing, and USB file transfer using the highly convenient and secure CF media. Operation is selectable between linear PCM and MP3 formats – providing .WAV and MP3 file types. Bit rates are selectable between 32 and 320kbps for MP3 recording. Record start and stop times can be scheduled, and a pre-record memory buffer enables recording to be activated at the start of an event. The integrated time and date generator automatically stamps all sessions. Both models

feature RS232 control.

The PMD580 additionally provides networking capabilities, with Ethernet LAN and USB connectivity. Drag and drop file transfer and network remote control, via the PC and Mac compatible web-based GUI, allows users to set menu parameters, schedule recording events, and transfer and archive audio files. Also included are balanced analogue and digital AES/EBU I/Os, and selectable 24-bit recording.

## PMD620

The PMD620 Professional Handheld Field Recorder, is a new addition to the PMD range of solid state recorders. The pocket size recorder integrates a stereo condenser microphone array, highly intuitive user menu and interface controls, built in speaker, and utilises the mass-market SD Flash recording media.

Robust construction, ease and speed of operation, versatile recording options, and compact form, mean that the PMD620 is ideally configured for ENG, podcasting, location sound recording, meeting, conferencing, and other enterprise applications requiring accurate record. Selectable stereo/mono, MP3/.WAV format modes, 16-bit/24-bit signal resolution, and 44.1/48kHz sample rates provide for the variable selection of recording time and signal quality, supporting everything from extended length voice recording, to high quality music recording.

The PMD620 is compatible with SDHC (high capacity) cards, which currently provide for up to 32GB storage capacity. Recording time with a 4GB card extends from three hours and 44 mins for stereo PCM at 24-bit/48kHz, to 283 hours and 44 minutes – almost 12 days – for mono MP3 at 32kbps.



## PMD661

The very latest model in the range, the PMD661 is a robust and versatile professional handheld PCM/MP3 recorder that supersedes the highly popular PMD660; offering an improved form factor, a superior feature set, and use of SD Flash media. Major new design innovations include a significantly smaller footprint than the PMD660, and an improved top facia layout with fewer buttons and more highly developed use of multi-functional operation.

A third smaller than the PMD660, a new feature set includes an integrated high quality stereo condenser microphone array for 'point and shoot' operation, and a highly visible 128x64 dots matrix OLED (organic LED) display. The PMD661 features both balanced mic and balanced line XLR inputs, as well as unbalanced line outs on RCA connectors. Also included for the first time at this price point in the range is a high resolution 24-bit/96kHz recording option (PCM). In another first, Marantz Professional has bundled it's Mark Editor software which allows basic editing to be carried out on a handy PC or laptop, and files posted for immediate distribution. Drag and drop file transfer is supported via the USB 2.0 port. Power is via four AA batteries.



## PMD671

The PMD671 is a 'full-scale' professional portable solid state recorder, featuring one-touch, non-stop, PC-compatible recording. Designed for location sound applications, the PMD671 provides unrivalled levels of convenience, recording audio files to either Microdrives or Compact Flash cards with the flip of a switch. The PMD671's Read After Write monitor is a totally unique feature, providing a virtual 'third head'.

Compatible with MP3, MP2, BWF, and WAV formats, the PMD671 boasts 40 assignable quality settings, as well as a File Allocation Table (FAT32) for future multi-gigabyte file capability. Settings include 16-96kHz sample rates for PCM, and 32-384/320-bit rate selections for MP2/MP3 formats.

Features include non-stop recording with six hours of battery life, menu-driven remote operation, and an EDL marking system for creating new files on-the-fly during recordings for easy file selection during playback, and USB 2.0 PC connectivity. Professional specifications include balanced XLR mic Inputs, 48v phantom power, and digital I/O.

## PMD660

The PMD660 is a professional portable digital recorder utilising Compact Flash media. Used extensively by news and court reporters around the world, the PMD660 meets the increasing demand for affordable digital recording with superior sound quality, ease of use, and reliability. Its compact form, enabling single handed operation, robust construction with no moving parts, and extensive operational capabilities, have won it industry awards and plaudits from users.

Professional specifications include balanced XLR microphone inputs with phantom power and up to 20dB attenuation. Features such as one touch recording, selectable .WAV or

MP3 file formats, non-stop recording with four hours of battery life, and an EDL marking system for creating new files on-the-fly during recording for easy file selection during playback, provide unrivalled versatility in the field. USB connectivity enables simple drag and drop transfer of audio files to PC or Mac for desktop editing, online distribution, and network transfer and storage. Power is via four AA batteries.

**marantz**  
PROFESSIONAL

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# An Evolution In Recorders

The first portable self-contained Nagra audio recorder appeared nearly 60 years ago from the workshops of the Swiss-based Kudelski company. A constant evolution of recorders, following ever-changing technologies, has been introduced to countless different industries. Today a range of digital recorders for broadcast, music, and film industries are available.



## Film And Music

Probably the most advanced recorder in technical terms that has ever come out of the Cheseaux factory, the VI is, as its name suggests, a six-track recorder. These six tracks are recorded to an internal IDE hard drive. A removable Compact Flash slot allows either copying of the master recording, or various combinations of track selections to also be made. The recorder has six analogue inputs on XLR connectors, four of which are equipped with extremely high quality microphone pre-amplifiers. Two of these connectors double up as AES A and B inputs for connection to digital signal sources.

Looking in more detail to the microphone pre-amplifiers, they not only offer +48V phantom powering, as one expects, but they are also equipped with in-house wound transformers (when set to the dynamic position) offering an improvement of more than 6dB in the noise floor over the equivalent transformerless inputs. Fitted with an integrated 'vortex' filter, these pre-amplifiers can be used in the windiest conditions

imaginable, without suffering from the 'popping' traditionally associated with outdoor operation. Naturally, this does not eliminate the need for proper microphone protection, but is a great help to the user in unpredictable circumstances. They have been designed to be accurately matched in sensitivity to the various different types of microphones through individual sensitivity selectors for each pre-amplifier. Digital pots on the front panel give sensitivity adjustment to the four pre-amplifiers, while the remaining two analogue inputs can be level set in the menus.

## Analogue And Digital Inputs

The choice of inputs, along with all other machine parameters, is selected

through a clearly laid-out menu system displayed on a 3½" color TFT screen. This screen has been specially selected as it is 'sunlight readable' and has a very large viewing angle. The controlling software for the display has

been written in such a manner as to allow the permanent indication of important information (TC, track, etc)

even when browsing the menus.

Principal operation of the NAGRA VI is achieved using the traditional rotary main function selector placed in the standard location on the right side of the front panel. This switch not only follows tradition, but also frees up space on the front panel to allow unimpeded access to other principal controls. The audio tracks can be monitored as required, using a selection of channel switches also located on the front panel, via either of the two ¼" jack headphone connectors.

## Total Compatibility

The digital portion of the NAGRA VI is based on 16/24-bit files recorded in either monophonic or polyphonic Broadcast Wave file formats, at sampling frequencies up to 96kHz with iXML compatible metadata. The time code system covers all traditional SMPTE/EBU frame rates, and will allow 0.1% pull down for NTSC compatibility. The 23.976 time code rate is also supported for the modern 24P high definition digital video format compatibility. The entire heart of the NAGRA VI is clocked from a Stratum III quartz, guaranteeing a maximum drift of less than 3ppm throughout the temperature range from -20°C to +70°C over a 15 year period.



## Broadcast

The LB is the latest recorder in the NAGRA range. It is a two-channel digital recorder designed specifically for the broadcast industry. It supports a combination of features from the rest of the NAGRA family making it a very versatile tool for many recording applications. In brief, it is a portable battery operated 16/24-bit two-channel solid-state recorder with on-board editing, an Ethernet connection, and Bluetooth communication. Sampling frequencies of up to 192kHz are available depending on the application desired.

This compact recorder is designed initially for journalists, with the aim that they can record and edit their material in-the-field and return it to the studio over the GSM network by means of Bluetooth communication with a mobile phone. The NAGRA-LB, however, fulfils many recording applications from wildlife recording to sound effect gathering, and even music productions work. Musicians will find that the features offered on the LB make it ideal for high quality on-location production work. It has the possibility to be connected directly to the Internet through its Ethernet port, and files can immediately be transferred over IP, giving it an immediate appeal to Internet users, and is an easy way of putting music and other recordings onto the World Wide Web.

The mic inputs are of the highest possible quality and are fitted with a special integrated vortex filter to virtually eliminate wind noise, and are equipped with linkable audio limiters, +48V phantom powering, and independent sensitivity selection switches. The XLR microphone input connectors double up as LINE inputs and are conveniently located on the left side of the recorder,



and an AES digital input can also be fed to a dedicated XLR connector. Also on the left side is the Compact Flash slot, which has a small button next to it marked 'Swap', allowing the internal buffer memory to take over the recording duties while the removable card is replaced. The available time for this operation is clearly indicated on the main front display.

The metering and menu displays are accomplished through the back-lit high resolution colour display on the front face of the recorder. In addition there are three LEDs located above each input control as on other ARES recorders, to indicate the presence of signal and overload of each input.

The front panel of the unit, machined from a solid aluminium block, is laid out in a very simple and easy-to-use manner, and the following principal areas merit a mention. First of all, the operation of the NAGRA-LB is controlled through a traditional rotary main function selection switch with the following positions: Record, Test,

Off, Stop, and Play, as with other previous Nagra models. The FF and REW as well as Skip functions are accomplished using easily accessible snap switches next to the function selector.

A navigation and execute button, in the centre of the front panel, allows easy access and modification of the menu system that is used to select and set the parameters of the recorder. An internal microphone, that records to both channels simultaneously, and adjustable headphone output

## Hand-held Portables

The ARES-MII and ML are hand-held digital recorders with 2GB built-in flash memory. Designed to be used principally for journalism, they are high-quality ultra-portable recording devices.

The ARES-MII is equipped with an on-board audio editor for in-the-field program editing. Both versions can use either their internal microphone, and external clip-on microphone or a standard microphone on the end of the supplied XLR lead.

The external clip-on microphones are available with either a monophonic omni-directional capsule, or a stereo cardioid pattern depending on the type of recording being made.



completes the standard features on the front panel.

Recordings are made in either PCM linear or MPEG compressed BWF files, and these are recorded to both an internal 2GB fixed memory buffer and an extractable Compact Flash card. One tremendous advantage of the internal buffer memory is not only the ability to allow 'Hot Swapping' of the card during recording, but also to serve as an internal memory for recording should a replacement card not be available immediately.



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# The Olympus LS-10: High-End Sound Recording On Demand



Seize the moment in sound with the empowering ability to record high-end audio anywhere at anytime. The Olympus LS-10 Linear PCM Recorder captures superior audio at the touch of a button – with an exceptional design that fits comfortably in the palm of your hand.

Ideal for musicians, journalists, and podcasters, the **Olympus LS-10** enables the spontaneous capture of anything from an impromptu jam session to an unexpected encounter with a politician,

or even a nature soundscape – all in superb **24-bit/96kHz** quality. In addition to extra long battery life, there's also a generous **2GB of internal memory**, plus an **SD card slot** for ample storage with the potential to expand at any time. The **LS-10** comes equipped with everything you need to create high-quality sound projects, from a large easy to view 1.8-inch LCD panel, to high sensitive microphones, and built-in stereo speakers to playback your files anywhere, anytime.

## High-Quality Audio In Compact Form

Whether you're a musician hit by a sudden wave of inspiration, or a reporter caught in the midst of a breaking story – the **LS-10 Linear PCM Recorder** is the ideal tool for high-quality audio capture on the go. Boasting a high-sensitivity, noise reduction stereo microphone, sampling rates of up to 24-bit/96kHz and PCM recording, this portable device delivers very good sound quality. Users are given additional flexibility thanks to three different file formats: in addition

to **WMA** and **MP3**, the **WAV** format is also on hand to satisfy the demands of even the most discerning audiophiles.

## High-Sensitivity Microphones And Amplifier Circuitry

The **LS-10** incorporates built-in stereo microphones with higher sensitivity and lower noise. A rigid microphone housing constructed of carving-processed aluminium effectively withstands vibrations while making possible high-precision alignment. To derive the maximum performance in terms of frequency response and directivity, the microphone unit size and the opening of the case have been carefully designed. Recording capability is also enhanced by a layout that positions the microphones units with 90° outward orientation. The design makes it possible to record wider and more natural stereo sound fields without worrying about centre positioning.

The microphone amp circuitry employs discrete chips for the left and right channels to prevent interference with the signal between channels, assuring the clearest possible signal transmission with improved signal-to-noise ratio.

The analogue signal circuitry employs an independent power supply to reduce the interference form the power supply circuit so that the subtle nuances of

the original sound are not affected, resulting in a superior S/N ratio. The integrity of the signal is also maintained by completing separating the system control (digital) circuitry and the audio circuitry to reduce any possible noise.

The **LS-10** allows you to fine-adjust the recording level manually with switchable limiter to obtain the optimum level by checking the level meter display on the LCD panel and PEAK indicator. An automatic level control function is also provided.

## Stereo Speakers In A Compact Body

The **LS-10** features a strong and durable body. Aside from high-quality metal dials for the setting of volume and recording levels, its microphone casings are crafted from a solid aluminium block. An ergonomic form makes it a pleasure to hold, while a uniquely compact design lets it slip easily into any pocket, bag, or backpack – and back out again when inspiration strikes.

Despite its compact, 165-gram design,

the **LS-10** incorporates built-in stereo speakers that allow you to enjoy high quality sound playback anywhere, anytime.

The Reverb function allows you to select the reverberation effect from five modes (NORMAL, STUDIO, CLUB,



OLYMPUS+ + + + + OLYMPUS+ + + + OLYMPUS+ + + + OLYMPUS+ + + +

Olympus is a company with a long history of producing innovative, trend setting products for diverse applications. With its wide range of digital audio products, Olympus demonstrates that high-quality recording can be easy and flexible. From the busy professionals to the music lovers, Olympus delivers the perfect solution to everyone. All devices are easy to use, effective and reliable, allowing every last sound to be captured.

The European headquarters of Olympus were established in 1963 when Olympus Optical Co. (Europa) GMBH was founded in Hamburg, Germany. Today, all Olympus activity in the European markets is handled by Olympus Europa, its group of 23 European subsidiaries and affiliated companies and about 40 distributors, employing in total more than 3,200 multicultural people, from 26 nations.

Olympus UK continues to enjoy success in all its fields, and now, thanks to the new LS-10 PCM recorder, it brings the outstanding high quality audio standard of its products to an even further step.

Furthermore, Olympus has recently brought out the essential accessories to compliment the **LS-10**. The **RS30W** infrared remote control features two handy buttons to stop and start recording, and a multi-angle receiver makes it possible to operate the device remotely from all directions.

Even if you find yourself in exposed weather conditions, Olympus have come up with a high performance fur windshield – a **wind jammer** that caps the built-in microphones to ensure that your recordings will be protected from howling or popping wind noises.

Additional optional accessories include an AC adaptor, ME30W conference microphone, carrying case, tripod, and rechargeable Ni-MH battery.

The **LS-10** is available at selected retailers for a recommended price of about £250.

#### Where to buy:

[www.absolutemusic.co.uk](http://www.absolutemusic.co.uk)  
[www.dv247.com](http://www.dv247.com)  
[www.hhb.co.uk](http://www.hhb.co.uk)  
[www.cpc.co.uk](http://www.cpc.co.uk)



HALL, DOME) according to your preference. The advanced EUPHONY MOBILE surround sound also expands the sound space and presence even when listening via headphones. With its natural width and depth, the sound field is free of unwanted pressure or enclosed feeling, so you can enjoy fatigue-free sound files listening for an extended period of time.

versatile storage options, which is why the **LS-10** includes 2GB of internal memory, as well as an SD card slot. For significant increases in storage capacity, this model is even compatible with the SDHC format, which can supply up to 8GB of additional storage space. Moreover, the **LS-10** boasts long lasting battery life that allows you to record up to 12 hours (16-bit/44.1kHz mode) with two AA alkaline batteries.

#### Intuitive Operations And Beyond

Compatible with both Windows and Macintosh operating systems, the **LS-10** comes with the renowned **Cubase 4 LE** software from Steinberg, which enables playback of 24-bit/96kHz sampled PCM recordings – more than that of a media player. Additional tools and features bundled with Cubase include multi-track recording, MIDI support, digital mixer, as well as a video tutorial especially produced by Olympus.

#### Accessories Available

The **LS-10** is also accompanied by a carrying case, USB cable, audio cable, and two microphone windshields.



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#### Storage And Longevity

Higher quality recordings call for larger, more

# LRX2: High-End, High-Density Multi-Track Location Recording



SADiE LRX2 Location Recorder.

Taking location multi-track recording to a higher level of track density, SADiE's LRX2 takes on the new challenges of classical recording, TV sound location recording, and film-set sound capture. Recently acquired by Prism Sound with an agenda for extreme quality...

## Origins Of The SADiE LRX Concept

The idea to develop a location recording system grew wings during a series of meetings with members of the AMPS and IBS associations in 2004. Already many sound recordists were taking laptops and the portable SADiE BB2 on location for a variety of tasks, including onsite editing or even mobile ADR, and there was an increasing need for a multi-track solution, combining recording with editing software.

Robustness and reliability, without the need for setting up soundcards in the

field were crucial needs, and the SADiE LRX was originally released in 2005, initially as a 16-track device, with all the key elements in place:

- A main frame connected by USB to a laptop running the SADiE software.
- 8+1 motorised faders with a jog wheel and buttons on the front panel for hardware control.
- Modular high quality Input and Output 'Slither' cards as used in SADiE's H64 workstation.
- Dedicated DSP hardware with no need to set up sound-card 'variables' such as record buffers, latency, and so on.

the user with a hard disk loaded with standard time-stamped Broadcast WAV files.

## Size And Convenience

The most remarkable thing about the LRX package is that so many audio interfaces fit into a box 423mm x 330mm x 65mm, weighing less than 6kg. Without the need for a truck and piano movers to carry the recording gear to the venue, the LRX has given a real competitive advantage to many sound recordists who now simply take their LRX2/laptop, a bag of microphones, and a spare drive for mirroring on location. In these days of

cheap air-flights it's become a serious cost saving to be able to take your recording rig as hand luggage, and 'pick up and go' sessions have become a real possibility with an LRX2, with recordists more confident in taking on last minute jobs.

## The Hardware Package

The LRX2 hardware comprises an all-metal constructed unit, designed to be the 'base' for the connected laptop. It houses all the DSP, I/O cards, monitoring, and a small assignable



LRX2 recording *Songs of Praise* special for BBC TV on location with leading independent sound recordist Tony Wass of Ninth Wave Audio:  
[www.ninthwaveaudio.com](http://www.ninthwaveaudio.com)

## SADiE LRX2

The current model, the LRX2, has been developed with a significantly expanded track count allowing it to record 64 tracks via the MADI interface, or up to 48 tracks via SADiE's extremely high quality mic pre-amp cards.

With this high density, high reliability solution, the LRX2 began carving a niche on locations such as music concert recordings, classical recording sessions, film sets, and reality TV. It is in the reality TV market that SADiE really struck gold – a powerful recorder and editor that can mirror record, providing

## High Quality Sound Capture

Is all this convenience and portability at the expense of sound quality? Absolutely not, as the growing list of high-end classical recording engineers has proven. The sound of the LRX2's mic pre-amps is regarded by many audio professionals as being truly admirable and second to none.

The built-in mixer has nine motorised faders for automation, and allows rapid switching between the input and output busses with simple bank switching.



For resilience, a second external drive can be attached via USB2, Firewire, or eSATA to mirror recordings and provide a simultaneous safety copy.

Full Metadata support is provided to allow the operator to easily keep track of recordings and takes. Sessions created in the single-screen MTR can

With three mic/line input cards for example, you are armed with 48 channels of extremely high-quality, individually phantom-powered mic input! Sampling rates up to 96kHz/24-bit are supported with all the cards for maximum compatibility.



The LRX2 connects to a standard PC Laptop running Windows XP, or Intel Mac running XP under BootCamp, with a USB2 interface. An added benefit is that a DV-AVI video stream may be simultaneously captured for playback or ADR whilst the actors are still on set. Additionally, as full PQ mastering is a feature of all SADiE 5 software systems, CD masters can be produced on location onto CDR

If edits are required on set, and let's not forget that this is one of the great strengths of the SADiE system, then the EDLs can be exported as either OMF, AAF, or AES31 to other systems.

The flexibility of the LRX2 hinges on its interchangeable I/O cards. Be it

a multi-track analogue recorder, a multi-track digital recorder, a location sound recorder and playback device, on-set ADR, etc, the LXR2 provides extremely reliable and clean recordings. As the PC has minimal influence on the recordings (all audio enters and leaves the LXR itself), you don't have to worry about sound-card incompatibility or performance tweaking on location. It is for these reasons that many of the world's broadcasters, accustomed to SADiE in their radio and TV production departments, now use the LXR for large budget, large format, time-critical recordings.

**SADiE**  
A DIVULGAÇÃO DA EDUCAÇÃO EM SAÚDE

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# Sound Devices' 7-Series Digital Audio Recorders



Sound Devices' 7-Series line is the next generation of digital audio recorders. The two-, four-, or eight-track 7-Series recorders shatter the size, performance, and feature-set paradigms of all previous generations of audio recorders.

CL-8 Controller with Sound Devices 788T Digital Recorder.

Sound Devices' digital recorders are designed specifically for documentary and feature film/video production, sound effects gathering, and live multi-channel music recording. The 7-Series recorders include high-performance, high-resolution analogue microphone preamplifiers. Developed for high-bandwidth, high bit-rate digital recording, these preamps set a new standard for linearity, distortion performance, and low-noise gain.

Sound Devices' two-track (702, 702T, 722), four-track (744T), and eight-track (788T) recorders write and play audio files with either 16 or 24-bit depth at all professional sampling rates, up to 192 kHz (48.048 kHz on the 788T). Multiple storage mediums, analog/digital I/O, and high-speed computer connectivity make 7-Series recorders stand out as world-class products.

7-Series recorders are controlled by a fast and intuitive user interface, with easy to access buttons and an informative LCD display and LED metering. All controls can be accessed on the front panel of the unit.

Created with documentary, ENG, and feature film recording engineers in mind, Sound Devices keeps its recorders as small and lightweight as possible without compromising usability. No other audio recorders approach its size/performance ratio. The 788T can easily fit into a standard production audio carry case such as the

CS-4, and weighs less than 4lbs. All other 7-Series recorders weigh less than 3lbs and easily fit in an accessory pouch.

The 7-Series recorders write to industry-standard WAV files (with Broadcast Wave Metadata). Audio files are recorded to CompactFlash cards on all recorders, and to internal hard drives on the drive-equipped 722, 744T, and 788T (160GB). Audio files can be transferred over FireWire (USB 2.0 and FireWire 800 on 788T) to a Windows PC or Mac OS computer for post-production or archiving.

While the 7-Series recorders are very capable tools alone, they excel when used in conjunction with Sound Devices 302 and 442 audio mixers. Using an external mixer extends the flexibility of the recorder and gives the next level of audio I/O and control.

## Two-Track Recorders – 702, T, 722

Sound Devices' two-track recorders are powerful file-based digital audio recorders. Sound Devices 702 is a two-track file-based digital audio recorder, while the Sound Devices 702T has the added feature of a time code. The time code implementation makes the 702T perfect for any dual-system video or film production application. Sound Devices 722 is designed with an internal hard drive for extended record time.

These compact, two-track devices record and play back audio to

CompactFlash cards and/or external FireWire drives (as well as internal hard drives for the 722), making field recording simple and fast. They record and play uncompressed PCM audio at 16- or 24-bit, with sampling rates between 32kHz and 192kHz. Compressed (MP3) audio recording and playback is also supported.



Sound Devices 702T coupled with its 422 audio mixer housed in CS-4 carrying case.

Its removable, rechargeable batteries are a standard Sony-compatible Li-ion camcorder cell. The CompactFlash card appears as a removable storage device when connected via the FireWire port to Windows or Mac OS computers.

## Four-Track Recorder – 744T

Sound Devices' 744T is a powerful four-track file-based digital audio recorder. The super-compact 744T records and plays back audio to and from its internal hard drive, CompactFlash cards, and external FireWire drives. It records and plays uncompressed PCM audio at 16- or 24-bit with sample rates between

32kHz and 192kHz. Compressed (MP3) audio recording and playback from 64kb/s to 320kb/s is also supported. The time code implementation makes the 744T ready for any recording job – from over-the-shoulder to cart-based productions.



Sound Devices 744T Digital Recorders' with full panel view.

### Eight-Track Recorder – 788T

Intended for on-location, multi-track productions, the eight-track 788T features a significant expansion of input and output capability – eight full-featured microphone inputs and eight tracks of recording. The eight inputs, together with a thoroughly revised digital architecture, provide unprecedented recording flexibility. The added I/O, new digital architecture, and full feature set of the 788T doesn't compromise the compact size that has become a trademark of the 7-Series recorders.

To accommodate the larger data storage requirements of multi-track recordings, the 788T comes equipped

### Sound Devices Updated Wave Agent

Sound Devices continually looks at ways to improve workflow from field production to post production. The release of a public beta version of Wave Agent utility software is an important addition to workflow management. Compatible with both Mac and PC platforms, the new software provides comprehensive metadata editing tools for .WAV and associated metadata files as well as file playback for sound files recorded with the company's popular 7-Series Digital Recorders.

Available immediately, as a no-charge download from the company's website ([www.sounddevices.com](http://www.sounddevices.com)), Wave Agent helps users manage and edit Broadcast Wave file metadata (BEXT) and iXML metadata as well as allowing for batch editing of large file libraries. Wave Agent users are offered the flexibility to modify sound report templates to meet the needs of each project.



Sound Devices updated Wave Agent utility software.

with a 160GB 2.5-inch internal SATA hard disk drive. This on-board storage provides up to 30 hours of 8-track, uncompressed 24-bit audio recording of industry-standard Broadcast Wave files. Additionally, CompactFlash cards with UDMA support and external FireWire mass storage volumes can be used for recording and playback. All three storage mediums can be selected for simultaneous, redundant recording.

As with the 702T and 744T's time code recorders, the 788T has a high-performance, full-featured time code generator. It is also equipped with selectable word clock sync source, including numerous video sync sources. The 788T is powered by 7.2 V Li-ion batteries or external DC (10-18V), and offers an on-board Li-ion battery charger.

Sound Devices recently introduced the CL-8 Controller for the 788T Digital Recorder. The CL-8 is a mixing control surface companion for its 788T

recorder, which provides additional capabilities to the 788T without a significant increase in weight, making it adaptable to a variety of field productions.

The CL-8 features eight large, rotary faders to control the eight inputs of the 788T. It offers command over numerous input settings, including high-pass filter, limiter, polarity, and mute. When used with the CL-8, the original 788T input controls function as input trims, and the CL-8 controls offer fader control. With the CL-8 users now have access to four additional recording tracks (eight ISO tracks, L/R master, and Aux 1 and Aux 2) through the CL-8's associated firmware, for a total of 12 record tracks. The CL-8 is connected to the recorder over a USB connection and it includes a USB keyboard pass-through port.



Sound Devices newest addition to the 7-Series product line, 788T.

**SOUND DEVICES**

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# Why Compromise On Quality?

Whether its high quality recording at up to 192k, compressed recording of MP3, portability, music recording, or syncing to code, TASCAM has a field recording solution. With no compromise between price and quality TASCAM has made a reputation for quality at an affordable price.

## Where It All Began

TASCAM has been part of the field recording business for quite a number of years. Having started the revolution of portable recording 30 years ago with the Portastudio, TASCAM has had continuous presence in bring recording solutions at a modest price. The TASCAM DAP1 portable DAT recorder set a standard for high quality portable recording with a reasonable price tag, opening field recording to everybody. With vast experience and knowledge of this industry, this allows TASCAM to bring to market many devices that can give high quality results at a price point to suit most pockets even in credit crunch times!



## Today's Offerings

Following on from the DA-P1 success came TASCAM's High Definition Portable two track recorder, the HD-P2. This introduced up to 24-bit 192k recording on to Compact Flash media. The added benefit of going to Compact Flash media was non-linear transfer to and from PC or Mac, higher sampling rates, and embedded time code. Since the HD-P2's introduction over three years ago, it has had many pro users and has gained a reputation for setting a high standard in the lower/affordable end of the field recording market. Although the HD-P2 was designed with video shoots and live concerts in mind, it will happily

live within a classroom, church, or home studio, and has the simplicity of use for even the least technically minded person.

Early 2008 saw the introduction of the DR-1 portable hand held recorder. Once again this used solid state media, and allowed for high quality 24-bit 48k recordings to be made using either the onboard condenser microphones or plugging in some separate mics. This small hand held recorder allowed for recordings to be made direct to SD card (Secure Digital) in either WAV or MP3. This DR1 offered not only basic recording, but a host of features that would appeal to musicians such as overdubbing, on-board effects, and various playback controls. The on-board microphones can be moved 90 degrees, and left-right swapped depending on how the recorder is positioned.

TASCAM didn't stop at focusing on musicians as a whole, and decided to go one step further introducing the GT-R1. This recorder offers guitarist specific features such as a built in guitar trainer, guitar impedance input, guitar effects, and a rhythm loop player.

## Tomorrow's Offerings

Audio Media is proud to announce the addition of two new products from TASCAM, the DR07 and DR100. These new units complete the line for TASCAM, providing a solution for every instance of field recording.

The DR07 is a slim-line stereo handheld, offering the same high quality of the DR1 at an even more affordable price. This new unit is ideal for anyone wanting to record high quality recordings, either using the onboard mics, external mics, or line inputs direct from a mixer. If you don't need the musicians' features of the DR1, then this makes the DR7 an ideal purchase.

The second offering is the DR100, which is a pro handheld fitting somewhere between the DR1 and the HDP2. Four sensitive onboard microphones offer a host of options, an onboard



speaker to preview your recordings, and more importantly, the option for 2 XLR mic or line inputs allowing for phantom powered microphones or balanced line inputs to be connected. This would make the DR100 ideal for anyone who doesn't need to synchronise to video, but wants to use any of the hundreds of microphones on the market.

AM+++++TASCAM++++TASCAM++++TASCAM++++TASCAM++++



The DR100 also offers the same editing as the HD-P2, allowing recordings to be split and combined, or longer recordings to be made (over 2GB) much like the HD-P2. The DR100 can take either standard AA batteries or TASCAM'S rechargeable battery pack, giving over seven hours of use.

## Ease Of Use

TASCAM is renowned for having devices that can be used by anyone. Its field recorders make no exception to the rule, and have one of the easiest interfaces of all the available field recorders. Simply turn on the recorder, then press 'record' once to set levels, then 'record' once more to put it into record mode. As expected, all models have a stop and play button, which gives similar controls to a standard playback device such as a CD deck. Both the pro models (HD-P2 & DR100) have physical switches to select inputs, phantom power, pad and gain. The DR100 goes one step further, offering an optional remote control so the recorder doesn't even need to be touched, eliminating any handling noise. All five models have unique qualities and will find their way into many different markets. Between all five recorders, TASCAM has covered all bases.

Whatever your application, TASCAM has the solution!



## HD-P2

- 192k 24-bit
- Balanced Mic/Line Inputs
- 48v Phantom Power
- Analogue Limiter
- SPdif I/O
- Broadcast Wav
- Clocking: Spdif, Video, LTC, Word
- On-board editing features.



## DR-100

- 48k 24-bit
- Balanced Mic
- Line Inputs
- 48v Phantom Power
- Analogue Limiter
- Wav & MP3
- On-board editing features
- AA battery or rechargeable battery pack



## DR-1

- 48k 24-bit
- Mic/Line Input
- Phantom Power
- Pitch/key slow Up/Down features
- Reverb effects
- Tuner & Metronome
- Wav & MP3
- Rechargeable battery
- AKDR1 accessory kit

## GT-R1

- 48k 24-bit
- Guitar impedance Input

- Guitar trainer series features
- On board guitar effects
- Tuner & Metronome
- On-board rhythm loop player
- AKDR1 accessory kit

## DR-07

- 48k 24-bit
- Slim Line design
- Mic / Line Inputs
- Phantom Power
- Wav & MP3
- AA battery power
- Track editing features

## AK-DR1

- Tripod
- Mic Stand adaptor
- Windshield

**TASCAM**  
TEAC PROFESSIONAL

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Zaxcom's range of products supports industry-leading, professional audio recording/mixing in virtually any environment. With Zaxcom's technologies, audio professionals enjoy unparalleled features, superior audio quality, a minimal learning curve, and rugged, ergonomic designs. Popular Zaxcom systems optimised for audio recording include:

Zaxcom's Deva family provides multi-disk, multi-track, multi-format recording on location, with automatic backup to DVD-RAM



Deva 16 – 16 track hard disk audio recorder.

The National Academy of Television Arts and Sciences recognised the Deva with a 2008 Primetime Emmy Engineering Award. The awards highlight developments in engineering that are either so extensive an improvement on existing methods, or so innovative in nature that they materially affect the transmission,

recording, or reception of television. Since its introduction in 1996, Zaxcom's Deva hard-disk recorder/mixer has revolutionised the entire process of

location sound recording for television, and has set the standard for how audio is recorded in the non-linear age. The workflows that Zaxcom established have been adopted worldwide, with the Deva being the centerpiece on virtually

The company's latest introduction, the Deva 16, is a complete one-package, 16-track solution for audio recording, mixing, and effects. With eight hardware faders plus an integrated hard drive, DVD-RAM, and CompactFlash memory card slot, Zaxcom's Deva 16 provides fault-tolerant, multi-disk recording from eight analogue mic/line inputs with 48-V phantom power, four analogue line inputs, and eight digital inputs. A 16-channel, 24-bus digital mixer is built into the unit, providing EQ, notch filter, compressor, and delay functions on each channel.

Zaxcom's Fusion provides a revolutionary approach to on-location, multi-track sound mixing and recording. As a completely portable, solid-state solution, Fusion blends the performance characteristics of hard-disk recorders with the mobility of sound bag systems. The result is a best-of-both-worlds product ideally suited for over-the-shoulder recording and mixing for reality television, electronic newsgathering (ENG), and other mobile video productions.

Fusion provides reliable performance by eliminating hard-disk recording and other moving parts. This characteristic, paired with minimal power consumption, ensures that Fusion gives off almost no heat, for flawless operation in even the most demanding settings. Fusion's solid-state recording also means the system is far more tolerant to motion and high G force.

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**W** [www.everythingaudio.co.uk](http://www.everythingaudio.co.uk)

Contact: Roger Patel

e roger@everythingaudio.co.uk

In addition to selling its products in the United Kingdom through Everything Audio,

Zaxcom also has a number of distributors throughout Europe, including professional A/V companies serving:

- Belgium
- Denmark
- Finland
- France
- Germany
- Hungary
- Italy
- The Netherlands
- Portugal
- Spain
- Sweden

Visit Zaxcom's website, [www.zaxcom.com](http://www.zaxcom.com), to review a full list of available distributors.

## Company History

Zaxcom first opened its doors as a provider of professional audio equipment in late 1986, with a time base control system for video editing. Since that day, the company has grown to be a front-runner in the development of innovative audio recording products for broadcasting, newsgathering, concert and presentation, film, and theatre applications.

Glenn Sanders, President of Zaxcom, first launched the company to introduce a workflow-control system for video editing. The TBC (time base control) system quickly became an industry staple and received an Emmy Award for outstanding achievement in engineering development in 1989.

In 1992, the company first addressed the professional audio market and has since introduced a number of systems designed to help audio professionals keep pace with developments in digital and HD broadcasting.

Sanders and Zaxcom Chief Engineer Howard Stark embraced on-location audio in 1996 with the introduction of the Deva four-channel portable hard disk recorder. This unique product received the Scientific and Engineering Award at the 75th Annual Academy Awards in 2003, and was recognised with a Primetime Emmy Engineering Award in 2008. Frequently a pioneer in the audio industry, Zaxcom engineered the first digital wireless microphone and the first wireless microphone to feature integrated audio recording (patent pending).



Deva 5.8 10 track hard disk audio recorder.



Fusion – 10 track solid state audio recorder.

requires a timecode-referenced audio recording. The ZFR100 can record up to 12 hours of audio directly to a removable 2GB MiniSD Flash media card. With Zaxcom's trademark fault-tolerant recording, no audio is lost even in the case of an ejected memory card or accidental power-down.

The ZFR100's full-featured timecode reader/generator ensures perfect synchronisation with recorded audio, with an accuracy of one frame every 12 hours (.7716 PPM). The recorder can generate broadcast .WAV files or MP3 files at 48kHz/24-bits. Ultra-compact for use in virtually any application, the ZFR100 weighs about four ounces, and can be powered for up to 24 hours on just two AA batteries or indefinitely via an optional 8- to 16-V DC power input. The ZFR100 operates using a single mic-level unbalanced input for use with lavalier microphones.



## Zaxcom

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ZFR100 – single track solid state audio recorder.

Fusion's world-class microphone pre-amps ensure robust sound, low noise, and low distortion. Fusion records to two CompactFlash cards simultaneously, providing full redundancy and flexibility in the case of a media failure. The system can even copy files to the backup memory card at the same time as it records new material to the primary card. All files are recorded in Zaxcom's proven MARF file system, which safeguards audio recordings even in the event of power loss.

With an intuitive touch screen interface, Fusion allows users to enter metadata directly, keeping the system light and portable. Fusion supports infinite mixing of any input to any recorded track or output – pre-fader, post-fader, or phase inverted. This feature, along with eight output mix busses, allows the system to support newer cameras that feature

four or more recording channels.

Fusion offers a number of unique, industry-leading capabilities, including:

- Operation at up to 192kHz, which is necessary for sound effects recording
- A 16 input mixer with 16 output busses
- The capacity to mix all 16 analogue and digital inputs at the same time
- Output soft knee compressors and output buss on every recorded track (with the effects package)
- Eight XLR inputs, a key feature that allows user to quickly move an input from one channel to another
- Camera return and camera monitor facilities, including two return inputs that are monitored in mono mode.
- Software-configurable metering of the camera send, ensuring it will never be obsolete.

## ZFR100

Zaxcom's ZFR100 is a miniature timecode-referenced audio recorder. The ZFR100 can be used in a sound bag, worn on the body as a belt pack, or applied to any other application that

# Recorders Manufacturers Directory

## AATON

Based in Grenoble, France, Aaton is the manufacturer of a range of audio-visual equipment. Founded by Jean-Pierre Beauviala, the company has produced a range of quiet, portable hardware for location recording.

Aaton's first product targeted at sound engineers was the OriginC+, a time-marking system for location recorders. More recently, the company has produced Cantar, an over-the-shoulder 8-track mixer and recorder.

[www.aaton.com](http://www.aaton.com)

## AEQ

AEQ has been developing, manufacturing, and marketing equipment for radio, television, and multimedia for over 25 years. The company has recently developed the PAW 120, a portable AEQ recorder with voice activated recording and XLR adapter for the use of external microphones.

[www.aeqbroadcast.com](http://www.aeqbroadcast.com)

## EDIROL



Part of the Roland Corporation, Edirol specialises in rugged, digital multimedia tools. Recent recording products from this company include the R-09HR and R-44, a compact, four-channel, solid-state field recorder that uses SD or large capacity SDHC card storage media. The R-09HR is a handheld HD recorder with 24/96 fidelity.

[www.edirol.com](http://www.edirol.com)

## FOSTEX



Founded in 1973 as a speaker component retailer, Fostex has adapted to changing technologies. Although the company still produces speaker components, Fostex made a successful transition to digital in 1995. Recent recording products include the UR-2, a 1U rack size stereo audio recorder with SD and USB storage. Its professional portable range includes the PD606 and PD204 location recorders, and the FR field recorders.

[www.fostex.com](http://www.fostex.com)

## HHB

Located in London and founded in 1976, HHB is a manufacturer of professional audio recording devices and recording media, and the UK distributor of products from other leading manufacturers via Source, the company's distribution division. Another specialist division, Scrub, serves the needs of the film and TV post industry from premises in the heart of London's Soho. Recent recording product ranges include the FlashMic and Portadrive.

[www.hhb.co.uk](http://www.hhb.co.uk)

## IZ TECHNOLOGY CORP.

iZ Technology was originally formed as a fledgling company of Creation Technologies, and consisted of Barry Henderson and the team responsible for the RADAR I and RADAR II hard disk recorders. In more recent years, iZ Technology has expanded its RADAR line to include the Adrenaline

Plus-driven RADAR V line. There are now over 2500 RADAR units being operated in professional recording studios around the world.

[www.izcorp.com](http://www.izcorp.com)

## KLARK TEKNIK

In 1974, brothers Phil and Terry Clarke founded Klark Teknik Research Ltd. It was their concepts for graphic EQ devices that really made a name for the company, with the production of the DN370 and DN360.

Klark Teknik continues to innovate in both the analogue and digital realm of audio signal processing. The DN9696 is the company's high-resolution audio recorder. It offers 96 tracks of 96kHz audio at 24-bit, with nine hours of internal storage.

[www.klarkteknik.com](http://www.klarkteknik.com)

## KORG CORPORATION

Korg Corporation is a Japanese multi-national manufacturer of audio tools. Founded in 1962 as Keio Electronic Laboratories, the company originally produced rhythm machines before its first major success in the late 1960s, with a series of programmable organs and synthesisers. It went on to become one of the world's premier manufacturers and innovators in synth, sampling, and electronic music products.

Korg subsequently branched out into the music recording and electric guitar effects market, with products such as the MR-2000S master recorder and the MR-1 and MR-100 portable recorders.

[www.korg.com](http://www.korg.com)

## MARANTZ PROFESSIONAL



Marantz Professional is part of D&M Holdings Inc. Marantz focuses on high-end audio products, recently producing the PMD661; a professional handheld PCM/MP3 recorder. Superseding the PMD660, this product offers an improved form factor, superior feature set, and the use of SD Flash media. It also features an integrated stereo condenser microphone-array for point and shoot recording, and balanced mic and line XLR inputs.

[www.marantz.com](http://www.marantz.com)

## M-AUDIO

M-Audio is a provider of creative tools for computer-centric musicians and audio professionals. The company has independent offices in the US, Canada, UK, Germany, France, and Japan.

M-Audio aims to empower musicians to create, perform, and record with complete mobile hardware/software solutions that change when, where, and how music is made. Recent recording products include the MicroTrack II; a handheld location recorder.

[www.m-audio.com](http://www.m-audio.com)

## MAYCOM AUDIO SYSTEMS

Maycom grew its international reputation through the development of custom-made radio automation systems for broadcasting stations. Since then, the company has released a series of location recording equipment. Most recently, Maycom has produced the N→Trans, a Compact Flash-sized audio card that allows laptops and PDAs to be used as location recorders. It provides an audio interface, and AD/DA conversion.

[www.maycom.nl](http://www.maycom.nl)

## NAGRA



Nagra Audio has developed and marketed a complete range of analogue and

digital recorders. Equipment such as the Nagra 4.2 and the Nagra IV-S Time Code are benchmarks in sound recording for film, and are found on many sets worldwide.

In 2008, Nagra introduced the Nagra VI multi-channel digital location recorder; a continuation in the tradition of robust units for on-location recording.

[www.nagraaudio.com](http://www.nagraaudio.com)

## OLYMPUS

Olympus is undoubtedly best known as a camera manufacturer. However, the company has also produced a significant range of



analogue and digital handheld recorders. A recent addition to this range comes in the form of the DS-71. This linear PCM

professional dictation device records with a 44.1kHz/16-bit sampling rate, and offers 4GB of internal memory – equating to the potential for over 1,060 hours of recording.

[www.olympus.com](http://www.olympus.com)

## ROSENDAHL STUDIOTECHNIK

German audio-visual technology manufacturer Rosendahl Studioteknik produces a range of equipment for recording professionals. In addition to a selection of time code boxes, the company is responsible for the bonsaiDRIVE hard disk recorder. The bonsaiDRIVE is a portable video and multi-track audio hard disk recorder. It functions as a stand-alone hard disk recorder and portable media storage device, eliminating the added size and weight of a removable hard disk.

[www.rosendahl-studioteknik.de](http://www.rosendahl-studioteknik.de)

## SADiE



Based just north of Cambridge, SADiE shares its main production and R&D facilities with Prism Sound. SADiE aims to provide its customers with the best tools for the task, whilst ensuring the sonic integrity of the program material. Recent recording products from SADiE include the LRX2, a location audio workstation for the production of location multi-track audio recordings to be released on distributed media.

[www.sadie.com](http://www.sadie.com)

## SONY PROFESSIONAL

Sony Professional is a long standing leader in the manufacturing of electronic equipment for media, broadcast, and installation markets with a diverse product portfolio that includes cameras, displays, microphones, wireless systems, and much more. Its recorder products include the PCM-D1 and PCM-D50 handheld devices.

[www.sonybiz.net](http://www.sonybiz.net)

## SOUND DEVICES

Sound Devices, LLC, was founded in 1998 as a manufacturer of field-production audio products. Sound Devices' growing family of audio mixers, digital recorders, pre-amps, and computer interfaces are now used by production professionals worldwide. The company produces digital recorders such as the 744T and 788T, for documentary and feature film production, sound effects gathering, and live music multi-channel recordings.



[www.sounddevices.com](http://www.sounddevices.com)

## TASCAM/TEAC PROFESSIONAL



TASCAM is one of four divisions of TEAC Corporation, a \$1.2 billion manufacturing company headquartered in Japan. During TASCAM's formative years in the early 1970s, the music scene was flourishing, but musicians were restricted by the expense of professional recording. It was the company's goal to manufacture affordable recording equipment that offered the quality of professional studio equipment.

Recent recording products include the award winning DV-RA1000HD; and the DR-1 and GT-R1 portable recorders, plus new launches at NAMM 2009.

[www.tascam.com](http://www.tascam.com)

## YAMAHA

Over the past 100 years, Yamaha has grown from the manufacturer of Japanese reed organs to a multi-national corporation with a huge range of products. Audio products from this company include the AW1600 and AW2400 digital audio workstations. The AW2400 is the flagship of the AW line with 24 simultaneous tracks of playback, and motorised 100mm faders. New from Yamaha is the Pocketrak 2G, a handheld digital recorder with internal stereo microphone.

[www.yamaha.com](http://www.yamaha.com)

## YOU/COM

You/Com started out as a trading company, supplying data-and telecoms solutions to the corporate industry. Today, the company is also a manufacturer of hi-fi audio-communication equipment. The ReporterMate is a PCMCIA Flash-card recorder with FTP audio transfer and non-destructive editing. It also features a mixer with gain, compression, limiter, and a voice-over mixing function.

[www.youcom.nl](http://www.youcom.nl)

## ZAXCOM



Zaxcom was founded in 1986 by Glenn Sanders, a post-production professional who saw a need for equipment to create a more efficient workflow. Zaxcom designs and manufactures professional audio equipment such as Deva hard disk recorders, for the television and film industries. It claims the first digital wireless microphone and the first wireless microphone to feature integrated audio recording.

[www.zaxcom.com](http://www.zaxcom.com)

## ZOOM



Zoom is a Japanese audio company that produces equipment for both the

consumer and professional markets. Its product inventory includes effects pedals for guitars and basses, location recorders, drum machines, and microchip processors. Recent recording products from Zoom include the H2 and the H4 Handy Recorder; a handheld digital audio recorder, featuring built-in condenser microphones in an X-Y stereo pattern.

[www.zoom.co.jp](http://www.zoom.co.jp)



FREEDOM TO RECORD ANYWHERE



H2 Handy Recorder



H4 Handy Recorder

## Handy Recorder H2 & H4

Stereo recording • Ultra-portable

24-bit/96kHz and MP3 recording

Studio quality audio • USB interface